

Radio

Specialty

AMATEUR

Call Book Magazine

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Foreign
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SUMMER 1958




TO XYL'S

ONLY

Does your OM's ham-shack resemble a surplus store? Are you afraid to clean "that corner" for fear the vacuum cleaner will inhale cables, spare tubes or crystals? For your own future peace of mind why not describe Collins compact KWM-1 to him: small enough to fit neatly into the bookshelves in the living room, 175 watts of input power (SSB-PEP), a

super-sensitive receiver, outstanding frequency stability and calibration, 14-30 mc frequency range — and, when he is mobiling in the family car, it makes a neat installation, easily removable, not a "shin bumper." Cost? Through the years it will cost him less than anything else he can build or buy. Tell him to call his Collins distributor for the facts about the revolutionary KWM-1 mobile transceiver. Available on easy terms.

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ALLIED needs your used equipment!

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We need used equipment so badly, we'll go all-out to give you absolutely the biggest-and-best trade-in allowances on your old equipment. We've been trading **BIGGER** than ever—yet we've been literally cleaned out of reconditioned gear.

So let's have *your* used equipment—you'll never get more for it than you will now at **ALLIED**!

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EASY PAY TERMS: Only 10% down—your present equipment should more than cover the down payment—and you have up to 18 full months to pay.

LARGEST STOCKS: Get what you want from our complete stocks of all the famous Ham brands—get immediate delivery.

HAM-TO-HAM HELP: Our staff of 35 Hams goes all-out to give you the straight dope you want—you'll like the personal attention you get at **ALLIED**.

TRADE **HIGHEST** AT ALLIED
WRITE US TODAY FOR THE
BEST DEAL ANYWHERE

OUR **37th** YEAR

TRADE
BIGGEST AT

ALLIED RADIO

100 N. WESTERN AVE.
CHICAGO 80, ILLINOIS

RADIO AMATEUR CALL BOOK

MAGAZINE

known the world over as: the "CALLBOOK"

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Includes the States of New Jersey and New York.	
THIRD CALL AREA	100
Includes the States of Delaware, Maryland, Pennsylvania, and the District of Columbia.	
FOURTH CALL AREA	134
Includes the States of Alabama, Florida, Georgia, Kentucky, North and South Carolina, Tennessee, Virginia and the territories of Puerto Rico and the Virgin Islands.	
FIFTH CALL AREA	187
Includes the States of Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.	
SIXTH CALL AREA	232
Includes the State of California.	
SEVENTH CALL AREA	297
Includes the States of Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming.	
EIGHTH CALL AREA	329
Includes the States of Michigan, Ohio, and West Virginia.	
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"If you can't hear 'em . . . You can't work 'em"

RME Equipment in the Amateur Station MAKES THE DIFFERENCE

For 25 years, RME has had the skill for producing superior amateur equipment at a price attractive to the amateur. The tremendous features in RME equipment will fulfill the exacting requirements of the old timer and give the newcomer equipment that will more than meet his expanding needs in the years to come.



RME Model 4350A RECEIVER

All-new 75 to 1 single-dial tuning. Amateur bands only. High selectivity and rejectivity. Dual Conversion. Easy pinpoint-precision tuning. 100 kc. crystal calibration. Laboratory-engineered for maximum performance on SSB, CW and Phone. Ideal for operation on today's crowded bands. . . . \$249 Amateur Net.

RME Model 4301 Sideband Selector

An excellent companion for either the RME 4350 or 4350A. Provides easy selection of either sideband on suppressed carrier transmissions or AM phone signals. Adds as much as 15 db of sensitivity to the receiver. Can be connected to any communications receiver using 455KC IF or plugs directly into the RME receiver in jacks provided. . . . \$75 Amateur Net.

RME Model 4302 Speaker

Styled and finished to complement RME receivers. Housed in sturdy steel case with cast aluminum front panel. Operates with any receiver having 4-ohm speaker output terminals. . . . \$17.50 Amateur Net.

RME Model 8933 100KC Crystal Calibrator

Easy to install in RME 4300, RME 4350 and other receivers. Completely wired and tested. With hermetically sealed crystal and tube. . . . \$17 Amateur Net.

RME MAKES RECEIVERS, SPEAKERS, SIDEBAND SELECTORS AND PRESELECTORS. BUILT BY HAMS FOR HAMS.

GET THE FACTS about RME — a respected name in communications. WRITE for Bulletin RA86-244. See your RME Distributor.



RADIO MANUFACTURING ENGINEERS, INC.
DIVISION OF ELECTRO-VOICE, INC., BUCHANAN, MICHIGAN

A. R. R. L. COUNTRIES LIST

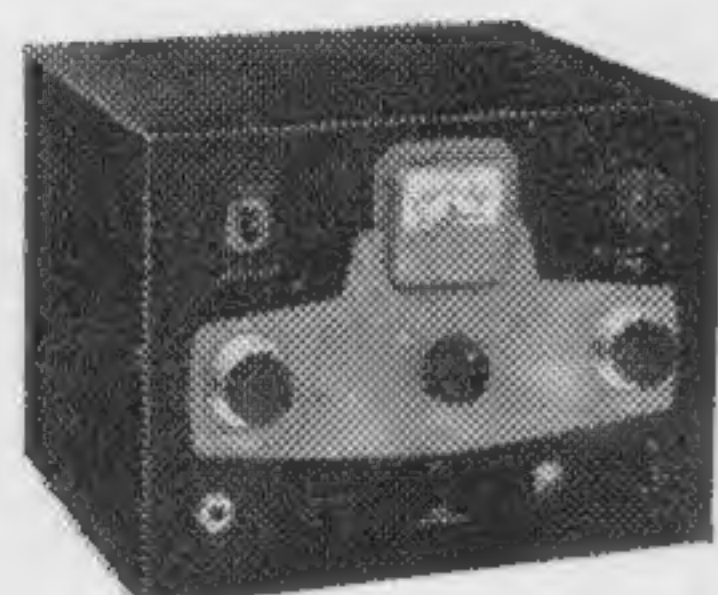
Official List for ARRL DX CONTEST and Postwar DXCC

The ARRL Postwar Countries List is the official standard used in connection with the ARRL DX competition and the DX Century Club. To qualify for the DX Century Club Award, an applicant must submit confirmations from at least 100 different countries contacted after November 15, 1945, in accordance with the Postwar DXCC Rules. Copies of the DXCC Rules will be furnished by ARRL on request.

AC3	Sikkim	K	(See W)	VP2	Windward Islands
AC4	Tibet	KA	(See JA)	VP3	British Guiana
AC5	Bhutan	KAφ	Bonin & Volcano Islands	VP4	Trinidad & Tobago
AP	Pakistan	KB6	Baker, Howland & American Phoenix Islands	VP5	Cayman Islands
BV	Formosa	KC4	Navassa Island	VP5	Jamaica
C (unofficial)	China	KC6	Eastern Caroline Islands	VP6	Turks & Caicos Islands
C3	Formosa	KC6	Western Caroline Islands	VP6	Barbados
C9	Manchuria	KG1	(See OX)	VP7	Bahama Islands
CE	Chile	KG4	Guantanamo Bay	VP8	Falkland Islands
CE9, KC4, LU-Z, VK1, VP8	Antarctica	KG6	Mariana Islands	VP8, LU-Z	South Georgia
CEφ	Easter Island	KG61	(See KAφ)	VP8, LU-Z	South Orkney Islands
CM, CO	Cuba	KH6	Hawaiian Islands	VP8, LU-Z	South Sandwich Islands
CN2	Tangier Zone	KJ6	Johnston Island	VP8, LU-Z	South Shetland Islands
CN8	French Morocco	KL7	Alaska	VP9	Bermuda Islands
CP	Bolivia	KM6	Midway Islands	VQ1	Zanzibar
CR4	Cape Verde Islands	KP4	Puerto Rico	VQ2	Northern Rhodesia
CR5	Portuguese Guinea	KP6	Palmyra Group, Jarvis Island	VQ3	Tanganyika Territory
CR5	Principe, Sao Thome	KR6	Ryukyu Islands (e.g., Okinawa)	VQ4	Kenya
CR6	Angola	KS4	Swan Island	VQ5	Uganda
CR7	Mozambique	KS6	American Samoa	VQ6	British Somaliland
CR8	Goa (Portuguese India)	KT1	(See CN2)	VQ8	Chagos Islands
CR9	Macau	KV4	Virgin Islands	VQ8	Mauritius
CR10	Portuguese Timor	KW6	Wake Island	VQ8	Rodriguez Island
CT1	Portugal	KX6	Marshall Islands	VQ9	Seychelles
CT2	Azores Islands	KZ5	Canal Zone	VR1	British Phoenix Islands
CT3	Madeira Islands	LA, LB	Jan Mayen	VR1	Gilbert & Ellice Islands & Ocean Island
CX	Uruguay	LA, LB	Norway	VR2	Fiji Islands
DJ, DL, DM	Germany	LA, LB	Svalbard (Spitzbergen)	VR3	Fanning Island (Christmas Island)
DU	Philippine Islands	LU	Argentina	VR4	Solomon Islands
EA	Spain	LU-Z	(See CE7Z, VP8)	VR5	Tonga (Friendly) Islands
EA6	Balearic Islands	LX	Luxembourg	VR6	Pitcairn Island
EA8	Canary Islands	LZ	Bulgaria	VS1	Singapore
EA9	Ifni	M1	San Marino	VS2	Malaya
EA9	Rio de Oro	MP4	Bahrain Island	VS4	Sarawak
EA9	Spanish Morocco	MP4	Kuwait	VS5	Brunei
EAφ	Spanish Guinea	MP4	Qatar	VS6	Hong Kong
EI	Eire (Irish Free State)	MS4	Trucial Oman	VS9	Aden & Socotra
EL	Liberia	OA	(See I5)	VS9	Maldives Islands
ET2	Eritrea	OD5	Peru	VS9	Sultanate of Oman
ET3	Ethiopia	OE	Lebanon	VU	India
F	France	OH	Austria	VU4	Laccadive Islands
FA	Algeria	OHφ	Finland	VU5	Andaman and Nicobar Islands
FB8	Amsterdam & St. Paul Islands	OK	Aland Islands	W, K	United States of America
FB8	Comoro Islands	ON4	Czechoslovakia	XE, XF	Mexico
FB8	Kerguelen Islands	OQ5, φ	Belgium	XE4	Revilla Gigedo
FB8	Madagascar	OX, KG1	Belgian Congo	XW8	Laos
FB8	Tromelin Island	OY	Greenland	XZ2	Burma
FC	Corsica	OZ	Faeroes	YA	Afghanistan
FD	French Togoland	PAφ, PI1	Denmark	YI	Iraq
FE8	French Cameroons	PJ2	Netherlands	YJ	(See FU8)
FF8	French West Africa	PJ2M	Netherlands West Indies	YK	Syria
FG	Guadeloupe	PX	Sint Maarten	YN, YNφ	Nicaragua
FK8	New Caledonia	PY	Andorra	YO	Roumania
FL8	French Somaliland	PZ1	Brazil	YS	Salvador
FM	Martinique	SL, SM	Netherlands Guiana	YU	Yugoslavia
FO8	Clipperton Island	SP	Sweden	YV	Venezuela
FO8	French Oceania (e.g., Tahiti)	ST	Poland	ZA	Albania
FP8	St. Pierre & Miquelon Islands	SU	Anglo-Egyptian Sudan	ZB1	Malta
FQ8	French Equatorial Africa	SV	Egypt	ZB2	Gibraltar
FR7	Reunion Island	SV5	Greece	ZC2	Cocos Islands
FS7	Saint Martin	TA	Crete	ZC3	Christmas Island
FU8, YJ	New Hebrides	TF	Dodecanese (e.g., Rhodes)	ZC4	Cyprus
FW8	Wallis & Futuna Islands	TG	Turkey	ZC5	British North Borneo
FY7	French Guiana & Inini	TI	Iceland	ZC6	Palestine
G	England	TI9	Guatemala	ZC7	(See JY)
GC	Channel Islands	UA1, 3, 4, 6	Costa Rica	ZD1	Sierra Leone
GD	Isle of Man	UA1	Cocos Island	ZD2	Nigeria
GI	Northern Ireland	UA9, φ	European Russian	ZD3	Gambia
GM	Scotland	UB5	Socialist Federated Soviet Republic	ZD6	Nyasaland
GW	Wales	UC2	Franz Josephland	ZD7	St. Helena
HA	Hungary	UD6	Asiatic Russian S.F.S.R.	ZD8	Ascension Island
HB1, 9	Switzerland	UF6	Ukraine	ZD9	Tristan da Cunha & Gough Island
HC	Ecuador	UG6	White Russian Soviet Socialist Republic	ZE	Southern Rhodesia
HCS	Galapagos Islands	UH8	Azerbaijan	ZK1	Cook Islands
HE	Liechtenstein	UI8	Georgia	ZK2	Niue
HH	Haiti	UJ8	Armenia	ZL	New Zealand
HI	Dominican Republic	UL7	Turkoman	ZL	Kermadec Island
HK	Colombia	UM8	Uzbek	ZM6	British Samoa
HKφ	Archipelago of San Andres	UN1	Tadzhik	ZM7	Tokelau (Union Islands)
HL	Korea	UO5	Kazakh	ZP	Paraguay
HP	Panama	UP2	Kirghiz	ZS1, 2, 4, 5, 6	Union of South Africa
HR	Honduras	UQ2	Karelo-Finnish Republic	ZS2	Prince Edward & Marion Islands
HS	Thailand	UR2	Moldavia	ZS3	Southwest Africa
HV	Vatican City	VE, VO	Lithuania	ZS7	Swaziland
HZ	Saudi Arabia (Hedjaz & Nejd)	VK	Latvia	ZS8	Basutoland
I	Italy	VK9	Estonia	ZS9	Bechuanaland
IS	Italian Somaliland	VK9	Canada	3A1, 2	Monaco
IS1	Sardinia	VKφ	Australia (including Tasmania)	3V8	Tunisia
JA, KA	Japan	VK9	Nauru Island	3W8	Cambodia
JY, ZC7	Jordan	VK9	Papua Territory	4S7	Ceylon
JZφ	Netherlands New Guinea	VK9	Territory of New Guinea	4W1	Yemen
		VKφ	Norfolk Island	4X4	Israel
		VO	Heard Island	5A	Libya
		VP1	Macquarie Island	9G1	Ghana
		VP2	(See VE)	9K	Kuwait
			British Honduras		Aldabra Islands
			Leeward Islands		Fridtjof Nansen Land (Franz Josef Land)
					Mongolia
					Nepal
					Viet Nam
					Wrangel Island

PUNCH YOUR SIGNAL HOME!

...with one of these power-packed
VIKING TRANSMITTERS



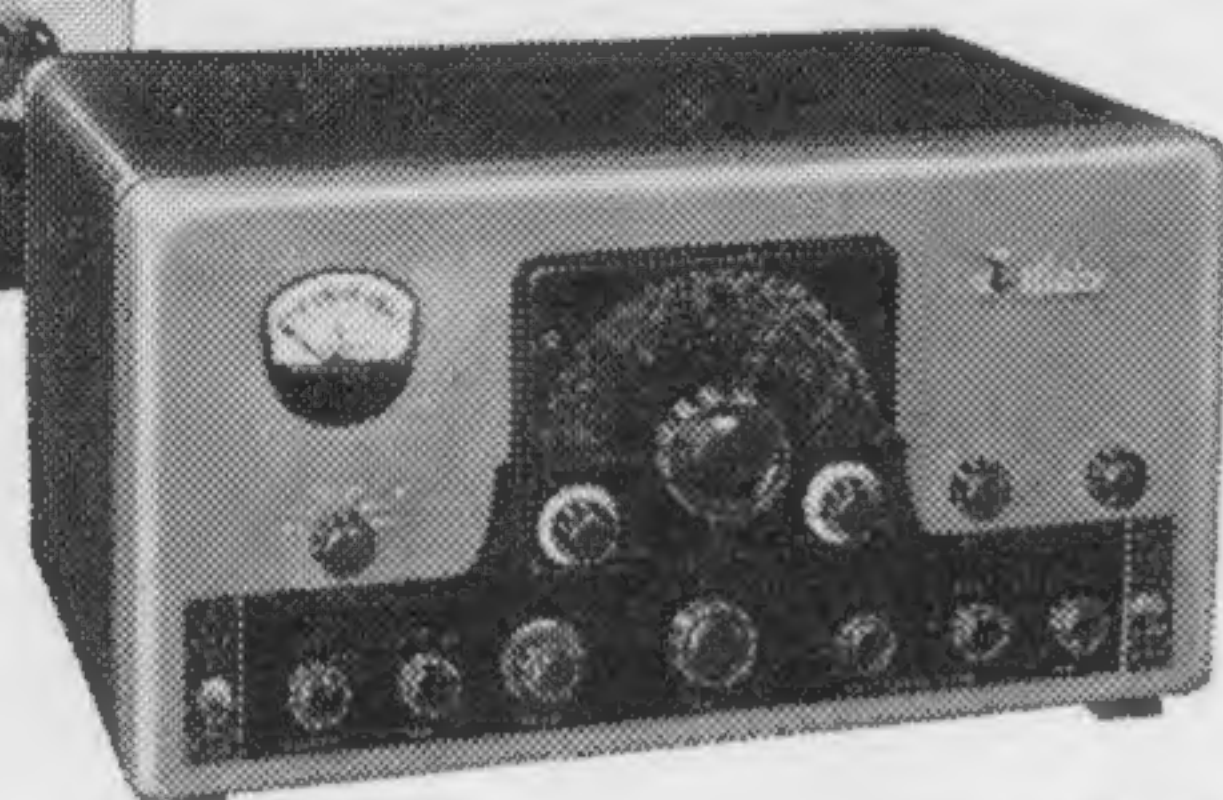
240-181



240-126



240-161



240-104

VIKING "ADVENTURER" TRANSMITTER—50 watts CW input—instant bandswitching 80, 40, 20, 15, 11, and 10 meters! Crystal or external VFO control. With tubes, less crystals and key.

Cat. No. 240-181-1. .Kit Amateur Net \$54.95

VIKING "NAVIGATOR" TRANSMITTER/EXCITER—More than enough RF power to excite most high powered final amplifiers on CW and AM. 40 watts CW input—bandswitching 160 through 10 meters. With tubes, less crystals and key.

Cat. No. 240-126-1. .Kit Amateur Net \$149.50

Cat. No. 240-126-2. .Wired and Tested Amateur Net \$199.50

VIKING "RANGER" TRANSMITTER/EXCITER—An outstanding amateur transmitter—also serves as an RF and audio exciter for high power equipment. 75 watts CW and 65 watts phone input—instant bandswitching 160, 80, 40, 20, 15, 11 and 10 meters. With tubes, less crystals, key and microphone.

Cat. No. 240-161-1. .Kit Amateur Net \$229.50

Cat. No. 240-161-2. .Wired and Tested Amateur Net \$329.50

VIKING "VALIANT" TRANSMITTER—Designed for outstanding flexibility and performance. 275 watts input on CW and SSB (P.E.P. input with auxiliary SSB exciter), 200 watts AM. Instant bandswitching 160 through 10 meters. With tubes, less crystals, key, and microphone.

Cat. No. 240-104-1. .Kit Amateur Net \$349.50

Cat. No. 240-104-2. .Wired and Tested Amateur Net \$439.50



VIKING "FIVE-HUNDRED" TRANSMITTER — Rated a full 600 watts CW . . . 500 watts phone and SSB. (P.E.P. input with auxiliary SSB exciter.) Two compact units—RF unit small enough to place on your operating desk beside your receiver. Instant bandswitching 80 through 10 meters. With tubes, less crystals, key and microphone.

Cat. No. 240-500-1 Amateur Net \$749.50

Cat. No. 240-500-2 Amateur Net \$949.50

Wired and Tested Amateur Net \$949.50



VIKING "COURIER" AMPLIFIER—Rated a solid 500 watts P.E.P. input with auxiliary SSB exciter as a Class B linear amplifier—500 watts input CW or 200 watts in AM linear mode. Completely self-contained desk-top package. Drive requirements 5 to 35 watts depending on mode and frequency desired. Continuous coverage 3.5 to 30 mcs. With tubes and built-in power supply.

Cat. No. 240-352-1 Amateur Net \$244.50

Cat. No. 240-352-2 Amateur Net \$289.50

Wired and Tested Amateur Net \$289.50



VIKING "THUNDERBOLT" AMPLIFIER—More than 2000 watts P.E.P. input SSB*—1000 watts CW—800 watts AM linear; in a completely self-contained desk-top package. Continuous coverage 3.5 to 30 mcs. Drive requirements: approximately 10 watts in Class AB2 linear, 20 watts Class C continuous wave. Complete with tubes and self-contained power supply.

Cat. No. 240-353-1 Amateur Net \$524.50

Cat. No. 240-353-2 Amateur Net \$589.50

Wired and Tested Amateur Net \$589.50



VIKING "KILOWATT" AMPLIFIER—In a class by itself . . . the only transmitter available that provides full, maximum legal power in all modes SSB, CW and AM—more than 2000 watts SSB*. Class C final amplifier operation provides plate circuit efficiencies in excess of 70% with unequalled broadcast-type HIGH LEVEL AMPLITUDE MODULATION with more than three times the AM power obtained in KW class linear equipments! Continuous tuning 3.5 to 30 mcs. Excitation requirements: 30 watts RF and 10 watts audio for AM; 2-3 watts peak for SSB. Wired and tested, with tubes.

Cat. No. 240-1000 Amateur Net \$1595.00

Matching accessory desk top, back, and three-drawer pedestal.

Cat. No. 251-101-1 FOB Corry, Pa. \$132.00



VIKING "PACEMAKER" TRANSMITTER/EXCITER—90 watts SSB P.E.P. and CW input . . . 35 watts AM. Instant bandswitching 80, 40, 20, 15 and 10 meters. Excellent stability and suppression. Temperature compensated VFO; VOX and anti-trip circuits; high efficiency pi-network output. More than enough power to drive the Viking "Kilowatt" or grounded-grid kilowatt amplifiers. With tubes and crystals, less key and microphone.

Cat. No. 240-301-2 Amateur Net \$495.00

* The F.C.C. permits a maximum one kilowatt average power input for the amateur service. In SSB operation under normal conditions this results in peak envelope power inputs of 2000 watts or more depending upon individual voice characteristics.



E. F. Johnson Company

3106 SECOND AVENUE S.W. • WASECA, MINNESOTA

PREFIXES—BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in () designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

ADEN	(A-21)	VS9
AFGHANISTAN	(A-21)	YA
ALAND ISLANDS	(E-14)	OH
ALASKA	(NA-1)	KL7
ALBANIA	(E-15)	ZA
ALGERIA	(AF-33)	FA
ANDORRA	(E-14)	PX
ANGLO-EGYPTIAN SUDAN	(AF-34)	ST
ANGOLA	(AF-36)	CR6
ARGENTINA	(SA-13)	LU
ASCENSION ISLAND	(AF-36)	ZD8
AUSTRALIA	(O-29 & 30)	VK
AUSTRIA	(E-15)	OE
AZORES ISLANDS	(E-14)	CT2
BAHAMA ISLANDS	(NA-8)	VP7
BAHRAIN ISLANDS	(A-21)	MP4
BAKER ISLAND	(O-31)	KB6
BALEARIC ISLANDS	(E-14)	EA6
BARBADOS	(NA-8)	VP6
BASUTOLAND	(AF-38)	ZS4
BELGIAN CONGO	(AF-36)	OQ
BELGIUM	(E-14)	ON
BERMUDA ISLANDS	(NA-5)	VP9
BHUTAN	(A-23)	AC5
BOLIVIA	(SA-10)	CP
BORNEO (Br. North)	(O-28)	VS4
BRAZIL	(SA-11)	PY
BRITISH HONDURAS	(NA-7)	VP1
BRITISH NORTH BORNEO	(A-28)	ZC5
BRUNEI	(O-28)	VS5
BULGARIA	(E-20)	LZ
BURMA	(A-26)	XZ
CAMEROONS, British	(AF-36)	ZD2
CAMEROONS, French	(AF-36)	FE8
CANADA	(NA-1 to 5)	VE
CANAL ZONE	(NA-7)	KZ5
CANARY ISLANDS	(AF-33)	EA8
CANTON ISLAND	(O-31)	KB6
CAPE VERDE ISLANDS	(AF-35)	CR4
CAROLINE ISLANDS	(O-27)	KC6
CAYMAN ISLANDS	(NA-8)	VP5
CEYLON	(A-22)	VS7
CHAGOS ISLANDS	(AF-39)	VQ8
CHANNEL ISLANDS	(E-14)	GC
CHILE	(SA-12)	CE
CHINA	(A-23 & 24)	C
CHRISTMAS ISLAND	(O-29)	ZC3
COCOS ISLAND	(NA-7)	TI
COCOS ISLANDS	(O-29)	ZC2
COLOMBIA	(SA-9)	HK
COOK ISLANDS	(O-32)	ZK1
CORSICA	(E-15)	FC
COSTA RICA	(NA-7)	TI
CRETE	(E-20)	SV
CUBA	(NA-8)	CM, CO
CYPRUS	(A-20)	ZC4
CZECHOSLOVAKIA	(E-15)	OK
DENMARK	(E-14)	OZ
DODECANESE ISLANDS	(E-20)	SV5
DOMINICAN REPUBLIC	(NA-8)	HI
ECUADOR	(SA-10)	HC
EGYPT	(AF-34)	SU
ELLICE ISLANDS	(O-31)	VR1
ENGLAND	(E-14)	G
ERITREA	(AF-37)	ET2
ETHIOPIA	(AF-37)	ET3
FAEROES, The	(E-14)	OY
FALKLAND ISLANDS	(SA-13)	VP8
FANNING ISLAND	(O-31)	VR3
FIJI ISLANDS	(O-32)	VR2
FINLAND	(E-15)	OH
FRANCE	(E-14)	F
FR. EQUATORIAL AFRICA	(AF-36)	FQ8
FRENCH OCEANIA	(O-32)	FO8
FRENCH WEST AFRICA	(AF-35)	FF8
GAMBIA	(AF-35)	ZD3
GERMANY	(E-14)	DL
GHANA	(AF-35)	9G1
GIBRALTAR	(E-14)	ZB2
GILBERT ISLANDS	(O-31)	VR1
GOA (Portuguese India)	(A-22)	CR8
GREECE	(E-20)	SV
GREENLAND	(NA-40)	OX
GUADELOUPE	(NA-8)	FG8
GUAM	(O-27)	KG6
GUANTANAMO BAY	(NA-8)	KG4

GUATEMALA	(NA-7)	TG
GUIANA, BRITISH	(SA-9)	VP3
GUIANA, FRENCH	(SA-9)	FY7
GUIANA, NETHERLANDS	(SA-9)	PZ
GUINEA, PORTUGUESE	(AF-35)	CR5
HAITI	(NA-8)	HH
HAWAIIAN ISLANDS	(O-31)	KH6
HONDURAS	(NA-7)	HR
HONG KONG	(A-24)	VS6
HOWLAND ISLAND	(O-31)	KB6
HUNGARY	(E-15)	HA
ICELAND	(E-40)	TF
INDIA	(A-21)	VU
IRAQ	(A-21)	YI
IRELAND	(E-14)	EI
ISLE OF MAN	(E-14)	GD
ISRAEL	(A-20)	4X4
ITALY	(E-15)	I
IWO JIMA ISLAND	(O-25)	KG6I
JAMAICA	(NA-8)	VP5
JAN MAYEN ISLAND	(E-40)	OY
JAPAN	(A-25)	KA
JARVIS ISLAND	(O-31)	KP6
JOHNSTON ISLAND	(O-31)	KJ
JORDAN	(A-20)	JY
KENYA	(AF-37)	VQ4
KERMANDIC ISLANDS	(O-32)	ZL1
KOREA	(A-25)	HL1
KUWAIT	(A-21)	9K2
LABRADOR	(NA-2)	VO
LACCADIVE ISLANDS	(A-22)	VU4
LAOS	(A-26)	XW8
LEBANON REPUBLIC	(A-20)	OD5
LEEWARD ISLANDS	(NA-8)	VP2
LIBERIA	(AF-35)	EL
LIBYA	(AF-34)	SA2
LIECHTENSTEIN	(E-14)	HE1
LITTLE AMERICA	(SA-13)	KC4
LUXEMBOURG	(E-14)	LX
MACAU	(A-24)	CR9
MADAGASCAR	(AF-39)	FB8
MADEIRA ISLANDS	(AF-33)	CT3
MALAYA	(A-28)	VS1, 2
MALDIVES ISLANDS	(A-22)	VS9
MALTA	(E-15)	ZB1
MARIANAS ISLANDS	(O-31)	KG6
MARSHALL ISLANDS	(O-31)	KX6
MARTINIQUE	(NA-8)	FM8
MAURITIUS	(AF-39)	VQ8
MEXICO	(NA-6)	XE
MIDWAY ISLAND	(O-31)	KM6
MIQUELON ISLAND	(NA-5)	FP8
MONACO	(E-14)	3A2
MOROCCO, French	(AF-33)	CN
MOROCCO, Spanish	(AF-33)	EA9
MOZAMBIQUE	(AF-37)	CR7
NAVASSA ISLAND	(NA-8)	KC4
NETHERLANDS	(E-14)	PA
NETHERLANDS NEW GUINEA	(A-28)	JZ
NETHERLAND W. INDIES	(SA-9)	PJ
NEW CALEDONIA	(O-32)	FK8
NEWFOUNDLAND	(NA-5)	VO
NEW GUINEA, Territory of	(O-28)	VK9
NEW HEBRIDES	(O-32)	FU8, YJ
NEW ZEALAND	(O-32)	ZL
NICARAGUA	(NA-7)	YN
NIGERIA	(AF-35)	ZD2
NIUE	(O-32)	ZK2
NORTHERN IRELAND	(E-14)	GI
NORWAY	(E-14)	LA
NYASALAND	(AF-37)	ZD6
OKINAWA	(A-25)	KR6
OMAN	(A-21)	MP4
PAKISTAN	(A-21, 22)	AP
PALESTINE	(A-20)	ZC6
PANAMA	(NA-7)	HP
PAPUA TERRITORY	(O-28)	VK9
PARAGUAY	(SA-11)	ZP
PERU	(SA-10)	OA
PHILIPPINE ISLANDS	(O-27)	DU
PITCAIRN ISLAND	(O-32)	VR6
POLAND	(E-15)	SP
PORTUGAL	(E-14)	CT1
PRINCE EDWARD & MARION ISLANDS	(AF-38)	ZS2
PUERTO RICO	(NA-8)	KP4

REUNION ISLAND	(AF-39)	FR8
RHODESIA, NORTHERN	(AF-36)	ZD7
RHODESIA, SOUTHERN	(AF-38)	ZE
ROUMANIA	(E-20)	YO
RYUKYU ISLANDS	(A25)	KR6
SAARLAND	(E-14)	9S4
SAINT HELENA	(AF-36)	ZD7
SAINT MARTIN	(NA-8)	FS7
SAIPAN ISLAND	(O-27)	KG6S
SALVADOR	(NA-7)	YS
SAMOA (U.S.)	(O-32)	KS6
SAMOA (Western)	(O-32)	ZM
SARAWAK	(O-28)	VS5
SAUDI ARABIA	(A-21)	HZ
SCOTLAND	(E-14)	GM
SEYCHELLES	(AF-39)	VQ9
SIAM	(A-26)	HS
SIERRA LEONE	(AF-35)	ZD1
SIKKIM	(A-22)	AC3
SOCOTRA ISLAND	(A-37)	VS9
SOLOMON ISLANDS	(O-28)	VR4
SOMALILAND, British	(AF-37)	VQ6
SOMALILAND, French	(AF-37)	FL8
SOMALILAND, Italian	(AF-37)	IS
SOUTH GEORGIA	(SA-13)	VP8
SOUTH ORKNEY ISLANDS	(SA-13)	VP8
SOUTH SANDWICH ISLANDS	(SA-13)	VP8
SOUTH SHETLAND ISLANDS	(SA-13)	VP8
SOUTHWEST AFRICA	(AF-38)	ZS3
SOVIET UNION:		
EUROPEAN RUSSIAN SOCIALIST		
FEDERATED SOVIET REP.	(E-16)	UA1, 3, 4, 6
ASIATIC RUSSIAN S.F.S.R.	(A-18, 19)	UA9, 0
UKRAINE	(E-16)	UB5
WHITE RUSSIAN S.S.R.	(E-16)	UC
AZERBAIJAN	(E-21)	UD6
GEORGIA	(E-21)	UF6
ARMENIA	(E-21)	UG6
TURKOMAN	(A-17)	UH8
UZBEK	(A-17)	UI8
TADZHIK	(A-17)	UJ8
KAZAKH	(A-17)	UL7
KIRGHIZ	(A-17)	UM8
KARELO-FINNISH REP.	(E-16)	UN1
MOLDAVIA	(E-16)	UO5
LITHUANIA	(E-15)	UP
LATVIA	(E-15)	UQ
ESTONIA	(E-15)	UR
SPAIN	(E-14)	EA
SPANISH GUINEA	(AF-36)	EA0
SWAN ISLAND	(NA-7)	KS4
SWEDEN	(E-14)	SM
SWITZERLAND	(E-14)	HB
SYRIA	(A-20)	YK
TANGANYIKA	(AF-37)	VQ3
TANGIER ZONE	(AF-33)	CN2
TIBET	(A-23)	AC4
TIMOR, Portuguese	(O-28)	CR10
TINIAN ISLAND	(O-27)	KG6T
TOGOLAND, French	(AF-35)	FD8
TONGA (Friendly) ISLANDS	(O-32)	VR5
TRANSJORDAN	(A-20)	ZC1
TRINIDAD & TOBAGO	(SA-9)	VP4
TRISTAN da CUNHA & COUGH ISLAND	(AF-38)	ZD9
TUNISIA	(AF-33)	3V8
TURKEY	(A-20)	TA
TURKS & CAICOS ISLANDS	(NA-8)	VP5
UGANDA	(AF-37)	VQ5
UNION OF SOUTH AFRICA	(AF-38)	ZS
UNITED STATES of AMERICA	(NA-3, 4, 5)	W, K
URUGUAY	(SA-13)	CX
VATICAN CITY	(E-15)	HV
VENEZUELA	(SA-9)	YV
VIET NAM	(A-26)	F18
VIRGIN ISLANDS	(NA-8)	KV4
WAKE ISLAND	(O-31)	KW6
WALES	(E-14)	GW
WINDWARD ISLANDS	(NA-8)	VP2
YEMEN	(A-21)	4W1
YUGOSLAVIA	(E-15)	YT, YU
ZANZIBAR	(AF-37)	VQ1

New!

hallicrafters "2 and 6"



SR-34

two and six meter
transmitter/receiver

World's first complete two and six meter radio station...
features transistorized, built-in power supply

COMPLETE SPECIFICATIONS

General description: The SR-34 is designed for either AM or CW and combines, for the first time in one compact package, the complete functions of a two and six meter radio station. It operates on 115-V. A.C., 6-V. D.C., or 12 V. D.C. and features a highly efficient transistorized power supply for the 6 and 12 volt operation.

Exclusive features: The perfect unit for short-range portable, fixed or mobile communication, the SR-34 meets—and exceeds—F.C.D.A. matching-fund specifications. The crystal sockets and transmitter tuning controls are concealed behind a panel which may be sealed to prevent tampering. Instantaneous selection of desired voltage possible and also "crossbanding" between the two and six meter bands. The specially designed cover has mounting clips for two-band antenna, owner's microphone, and cords.

Both receiver and transmitter may be used for C.W.; key jack and adjustable B.F.O. are provided. Drip-proof case is specially designed for safe outdoor use.

The transmitter is crystal-controlled; up to four crystals may be switch-selected. A fifth position on this switch permits external V.F.O. operation. Band selection also is front-panel controlled.

The receiver is a double conversion superhetero-

dyne, having a quartz crystal controlled second oscillator. This offers outstanding selectivity and high image rejection. Highest stability is obtained through separate oscillator and R.F. sections for each band.

All receiver functions provided—S-meter B.F.O., ANL, etc. Sensitivities average 1 microvolt on both bands. Transistorized power supply eliminates noisy, erratic operation encountered with vibrator-type power supplies.

Front Panel Controls: *Receiver:* Band Selector (49-54 mc., 143.5 to 148.2 mc.); Main Tuning; Sensitivity; Audio Volume; B.F.O. Pitch; Squelch Level; Headphone Jack. *Transmitter:* Function Switch (P.A., Rec., Cal., AM, CW); Power On/Off; Band Switch; Crystal Selector and V.F.O.; Oscillator Tuning; Doubler Tuning; Tripler Tuning; Final Tuning; Final Loading; Meter Switch.

Power output: 6 to 7½ watts on 2 meter, and 7 to 10 watts on 6 meter AM or CW, 100% mod. negative peak clipping. *Rear Apron:* Speech input level control; key jack; P.A. speaker terminals; mic. selector (high Z or carbon); mic. input; A.C. and D.C. fuses; power plug.

Available with convenient terms from your Radio Parts Distributor.

Export Sales. International Operations—Raytheon Manufacturing Co.—Waltham, Massachusetts



The new ideas in communications

are born at ...

In our 25th year of service

hallicrafters

Chicago 24, Illinois

POSTAL INFORMATION

The following table shows the postal rates for QSL cards, first class letters and air mail to the United States Possessions and foreign countries. International reply coupons may be purchased at any United States Post office. Upon presentation at a post office in any country except Korea, the coupon will entitle the person presenting it to receive a postage stamp or stamps of that country of sufficient value to prepay an ordinary letter of the first unit of weight addressed for delivery in this country. The column marked "RP" shows the number of international reply coupons required to prepay an air mail letter of the first weight unit from the countries indicated to the United States. The first class rates show the rate for the first ounce. Add four cents for each additional ounce or fraction. The air mail rates are for each half ounce except where indicated.

COUNTRY	QSL cards	First class	Air mail	RP	COUNTRY	QSL cards	First class	Air mail	RP	COUNTRY	QSL cards	First class	Air mail	RP
ADEN	.04	\$.08	\$.25	7	FRENCH OCEANIA	.04	.08	.25	3	NORWAY	.04	.08	.15	2
AFGHANISTAN	.04	.08	.25	7	FRENCH SOMALILAND	.04	.08	.25	3	NYASALAND	.04	.08	.25	4
ALASKA	.02	.03	.06*		FRENCH SUDAN	.04	.08	.25	2					
ALBANIA	.04	.08	.15	2	FRENCH TOGOLAND	.04	.08	.25	2	OKINAWA	.04	.08	.25	5
ALGERIA	.04	.08	.15	2						PAKISTAN	.04	.08	.25	5
ANDORRA	.04	.08	.15	8	GAMBIA	.04	.08	.25	6	PANAMA	.04	.08	.10	3
ANGLO-EGYPTIAN SUDAN	.04	.08	.25	4	GERMANY	.04	.08	.15	2	PAPUA	.04	.08	.25	6
ANGOLA	.04	.08	.25	4	GIBRALTAR	.04	.08	.15	3	PARAGUAY	.04	.08	.10	3
ANGUILLA	.04	.08	.10	6	GILBERT & ELLICE IS.	.04	.08	.25	6	PERU	.04	.08	.10	5
ANTIGUA	.04	.08	.10	6	GOLD COAST COLONY	.04	.08	.25	11	PHILIPPINE IS.	.04	.08	.25	15
ARGENTINA	.04	.08	.10	5	GREECE	.04	.08	.15	2	POLAND	.04	.08	.15	3
ARUBA	.04	.08	.10	1	GRENADA, BWI	.04	.08	.10	3	PORTUGAL	.04	.08	.15	3
AUSTRALIA	.04	.08	.25	4	GRENADINES, BWI	.04	.08	.10	3	PORT. EAST AFRICA	.04	.08	.25	3
AUSTRIA	.04	.08	.15	2	GUADELOUPE	.04	.08	.10	2	PORTUGUESE GUINEA	.04	.08	.25	3
AZORES	.04	.08	.15	3	GUAM	.02	.03	.06*		PORTUGUESE INDIA	.04	.08	.25	3
					GUATEMALA	.04	.08	.10	2	PORTUGUESE TIMOR	.04	.08	.25	5
BAHAMAS	.04	.08	.10	2						PORTUGUESE W. AFRICA	.04	.08	.25	3
BAHRAIN ISLANDS	.04	.08	.25	4	HAITI	.04	.08	.10	2	PUERTO RICO	.02	.03	.06*	
BALEARIC ISLANDS	.04	.08	.15	8	HAWAII	.02	.03	.06*						
BALUCHISTAN	.04	.08	.25	5	HONDURAS	.04	.08	.10	2	REDONDA, BWI	.04	.08	.10	6
BARBADOS	.04	.08	.10	2	HONG KONG	.04	.08	.25	5	REUNION ISLAND	.04	.08	.25	3
BARBUDA	.04	.08	.10	2	HUNGARY	.04	.08	.15	3	RIO DE ORO	.04	.08	.25	10
BECHUANALAND	.04	.08	.25	6						ROMANIA	.04	.08	.15	5
BELGIAN CONGO	.04	.08	.25	3	ICELAND	.04	.08	.15	2	RYUKYU ISLANDS	.04	.08	.25	5
BELGIUM	.04	.08	.15	2	INDIA	.04	.08	.25	6					
BERMUDA	.04	.08	.10	3	INDO-CHINA	.04	.08	.25	3	ST CHRISTOPHER, BWI	.04	.08	.10	6
BOLIVIA	.04	.08	.10	3	INDONESIA	.04	.08	.25	4	ST HELENA	.04	.08	.25	6
BRAZIL	.04	.08	.10	3	IRAN	.04	.08	.25	5	ST KITS, BWI	.04	.08	.10	6
BRITISH CAMEROONS	.04	.08	.25	6	IRAQ	.04	.08	.25	3	ST LUCIA, BWI	.04	.08	.10	4
BRITISH GUIANA	.04	.08	.10	4	ISRAEL	.04	.08	.25	2	ST PIERRE & MIQUELON	.04	.08	.08*	3
BRITISH HONDURAS	.04	.08	.10	2	ITALY	.04	.08	.15	2	ST VINCENT, BWI	.04	.08	.10	4
BRITISH SOMALILAND	.04	.08	.25	8	IVORY COAST	.04	.08	.25	2	SALVADOR	.04	.08	.10	2
BR. VIRGIN ISLANDS	.04	.08	.10	6						SAMOA (Br.)	.04	.08	.25	
BRUNEI	.04	.08	.25	6	JAMAICA	.04	.08	.10	2	SAN MARINO	.04	.08	.15	2
BULGARIA	.04	.08	.15	3	JAPAN	.04	.08	.25	4	SARAWAK	.04	.08	.25	6
BURMA	.04	.08	.25	5	JORDAN	.04	.08	.25	5	SAUDI ARABIA	.04	.08	.25	
										SCOTLAND	.04	.08	.15	6
CANADA	.02	.03	.06*	2	KENYA & UGANDA	.04	.08	.25	5	SENEGAL	.04	.08	.25	2
CANAL ZONE	.02	.03	.06*		KOREA	.04	.08	.25		SEYCHELLES	.04	.08	.25	3
CANARY ISLANDS	.04	.08	.15	8						SIERRA LEONE	.04	.08	.25	8
CANTON ISLAND	.02	.03	.06*		LABUAN	.04	.08	.25	6	SOLOMON ISLANDS	.04	.08	.25	5
CAPE VERDE ISLANDS	.04	.08	.25	3	LATVIA	.04	.08	.15	4	SOMALIA	.04	.08	.25	5
CAYMAN ISLANDS	.04	.08	.10	2	LEBANON	.04	.08	.25	3	SOUTHERN RHODESIA	.04	.08	.25	6
CEYLON	.04	.08	.25	7	LIBERIA	.04	.08	.25	5	SOUTHWEST AFRICA	.04	.08	.25	6
CHILE	.04	.08	.10	6	LIBYA	.04	.08	.15	5	SPAIN	.04	.08	.15	8
CHINA	.04	.08	.25	4	LIECHENSTEIN	.04	.08	.15	2	SPANISH GUINEA	.04	.08	.25	10
COLOMBIA	.04	.08	.10	7	LITHUANIA	.04	.08	.15	4	STRAIT SETTLEMENTS	.04	.08	.25	5
COOK ISLANDS	.04	.08	.25	6	LUXEMBOURG	.04	.08	.15	2	SURINAM	.04	.08	.10	3
CORSICA	.04	.08	.15	2						SWEDEN	.04	.08	.15	2
COSTA RICA	.04	.08	.10	3	MACAO	.04	.08	.25	3	SWITZERLAND	.04	.08	.15	2
CUBA	.04	.08	.10	3	MADAGASCAR	.04	.08	.25	4	SYRIA	.04	.08	.25	3
CURACAO	.04	.08	.10	1	MADEIRA ISLANDS	.04	.08	.15	3					
CYPRUS	.04	.08	.25	3	MALAYA	.04	.08	.25	6	TAIWAN (Formosa)	.04	.08	.25	4
CYRENAICA	.04	.08	.15	5	MALTA	.04	.08	.15	4	TANGANYIKA	.04	.08	.25	5
CZECHOSLOVAKIA	.04	.08	.15	2	MANCHURIA	.04	.08	.25	4	THAILAND	.04	.08	.25	3
					MARTINIQUE	.04	.08	.10	2	TIBET	.04	.08	.25	4
DAHOMY	.04	.08	.25	2	MAURITANIA	.04	.08	.25	2	TONGA ISLANDS	.04	.08	.25	5
DENMARK	.04	.08	.15	2	MAURITIUS	.04	.08	.25	3	TRIESTE	.04	.08	.15	2
DODECANESE IS.	.04	.08	.15	2	MEXICO	.02	.03	.06*	2	TRINIDAD	.04	.08	.10	3
DOMINICA	.04	.08	.10	4	MIDWAY ISLAND	.02	.03	.06*		TRIPOLITANIA	.04	.08	.15	5
DOMINICAN REPUBLIC	.04	.08	.10	2	MONACO	.04	.08	.15	2	TRISTAN DA CUNHA	.04	.08	.25	
					MONTERRAT, BWI	.04	.08	.10	6	TUNISIA	.04	.08	.15	2
ECUADOR	.04	.08	.10	2	MOROCCO, (Br. & Fr.)	.04	.08	.15	2	TURKEY	.04	.08	.15	3
EGYPT	.04	.08	.15	2	MOROCCO, (Spain)	.04	.08	.15	8	TURKS ISLAND	.04	.08	.10	3
EIRE (Ireland)	.04	.08	.15	5	MOZAMBIQUE	.04	.08	.25	3					
ENGLAND	.04	.08	.15	6						UGANDA	.04	.08	.25	5
ERITREA	.04	.08	.25		NAURU ISLAND	.04	.08	.25		UNION OF SOUTH AFRICA	.04	.08	.25	6
ESTONIA	.04	.08	.15	4	NETHERLANDS	.04	.08	.15	3	URUGUAY	.04	.08	.10	4
ETHIOPIA	.04	.08	.25	3	NETHERLANDS W. INDIES	.04	.08	.10	1	U.S.S.R.	.04	.08	.15	4
					NEVIS	.04	.08	.10	6	U. S. VIRGIN IS.	.02	.03	.06*	
FALKLAND ISLANDS	.04	.08	.10		NEW CALEDONIA	.04	.08	.25	3					
FAEROES ISLANDS	.04	.08	.15	2	NEWFOUNDLAND	.02	.03	.06*	2	VATICAN CITY	.04	.08	.15	2
FIJI ISLANDS	.04	.08	.25	6	NEW GUINEA	.04	.08	.25	6	VENEZUELA	.04	.08	.10	3
FINLAND	.04	.08	.15	2	NEW HEBRIDES	.04	.08	.25	3					
FRANCE	.04	.08	.15	2	NEW ZEALAND	.04	.08	.25	6	WAKE ISLAND	.02	.03	.06*	
FRENCH CAMEROONS	.04	.08	.25		NICARAGUA	.04	.08	.10	3	YEMEN	.04	.08	.25	
FRENCH EQ. AFRICA	.04	.08	.25	3	NIGER	.04	.08	.25	2	YUGOSLAVIA	.04	.08	.15	2
FRENCH GUIANA	.04	.08	.10	2	NIGERIA	.04	.08	.25	6					
FRENCH GUINEA	.04	.08	.25	2	NORTH BORNEO	.04	.08	.25	7	ZANZIBAR	.04	.08	.25	6
FRENCH INDIA	.04	.08	.25		NORTHERN IRELAND	.04	.08	.15	6					
					NORTHERN RHODESIA	.04	.08	.25	7					

* rate per ounce.

QSL cards can be sent to any country in the world by air mail for 10 cents.

MOSLEY "Antenna Design"

makes the difference in...

- PERFORMANCE
- DURABILITY

- HIGH GAIN
- LOW SWR



Introducing... the newest in "Trap" antenna design the MOSLEY TRAP

MASTER

Now—the newest concept in trap antenna design has been incorporated into the new MOSLEY Trap-Master! Aluminum enclosed coils that defy weather, dirt and corrosion. Aluminum elements, boom and element support—lasting quality that requires no bracing or bridging—reduces element sag and minimizes wind load!

High gain? Up to 8db on all bands with 25db front-to-back and 1.5/1 SWR! This is built-in performance that sets your MOSLEY Beam years ahead in the field of Amateur Radio.



TA-33

3 bands, 10-15-20

The MOSLEY "Trap-Master", model TA-33 \$99.75 am.net.

Performance Chart For All MOSLEY Beams

MODEL NO. DESCRIPTION	"VEST POCKET" DESIGN									"SUPER" DESIGN				TRAP
	VPA 20-3 20 M. 3 EL.	VPA 20-2 20 M. 2 EL.	VPA 40-2 40 M. 2 EL.	VPA 1015-2 10-15 M. 2 EL.	VPA 1015-3 10-15 M. 3 EL.	VPA 1020 10-20 M. 5 EL.	VPA 1520 15-20 M. 6 EL.	VPA-3B 15-20-40 M. 4 EL.	VPA-73 10-15-20 M. 7 EL.	S-103 10 M. 3 EL.	S-153 15 M. 3 EL.	S-203 20 M. 3 EL.	S-1510 15-10 M. 6 EL.	TA-33 10-15-20 M. 3 EL.
Gain	7.5db	5db	5db	5db	7.5db	7.5db	7.5db	5db	7.5db	8db	8db	8db	8db	8db
Front-to-back	28db	20db	19db	15db	20db	28db	20db	20db	20db	20db	20db	20db	20db	25db
SWR	1.5/1	1.5/1	1.1/1	1.5/1	1.2/1	1.5/1	1.2/1	1.1/1	1.5/1	1.2/1	1.2/1	1.2/1	1.2/1	1.5/1
Max. El. Lgth.	23'	23'	36' 1 1/2"	14'	14'	22'	22'	36'	24' 6"	17' 3"	24'	34' 6"	24'	28'
Boom Lgth.	12'	6'	14' 10"	4' 6"	10'	12'	12'	15'	12'	8' 4"	10'	14' 10"	12'	14'
Turning radius	13.5'	12.5'	19.5'	7'	8.6'	13.5'	13.5'	19.5'	14'	9.5'	13'	18.5'	13.5'	15.5'
Weight	37 lb.	25 lb.	68 lb.	18 lb.	24 lb.	57 lb.	58 lb.	75 lb.	61 lb.	20 lb.	22 lb.	71 lb.	47 lb.	53 lb.
Price	\$66.37	44.37	74.95	39.89	59.68	120.79	129.90	135.00	151.20	39.00	45.28	74.95	72.85	99.75

ALL MOSLEY ROTARY BEAMS ARE RATED 1 KW.

* TOTAL NUMBER OF ELEMENTS PER BEAM.

The finest communication arrays in the world are designed by MOSLEY engineers and built in strict accordance with specifications! Top-notch craftsmanship and high grade material are prime requisites for all antennas...providing the owners of MOSLEY beams with the most outstanding value per dollar invested!

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MOSLEY ELECTRONICS, INC.

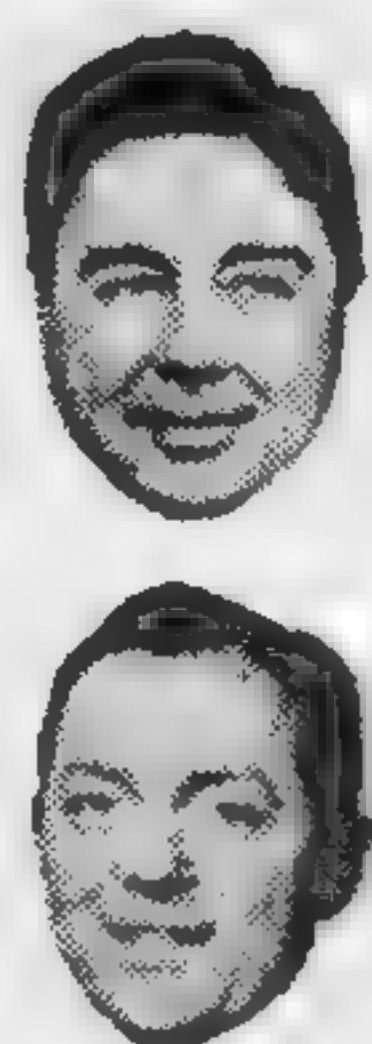
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INTERNATIONAL "Q" SIGNALS

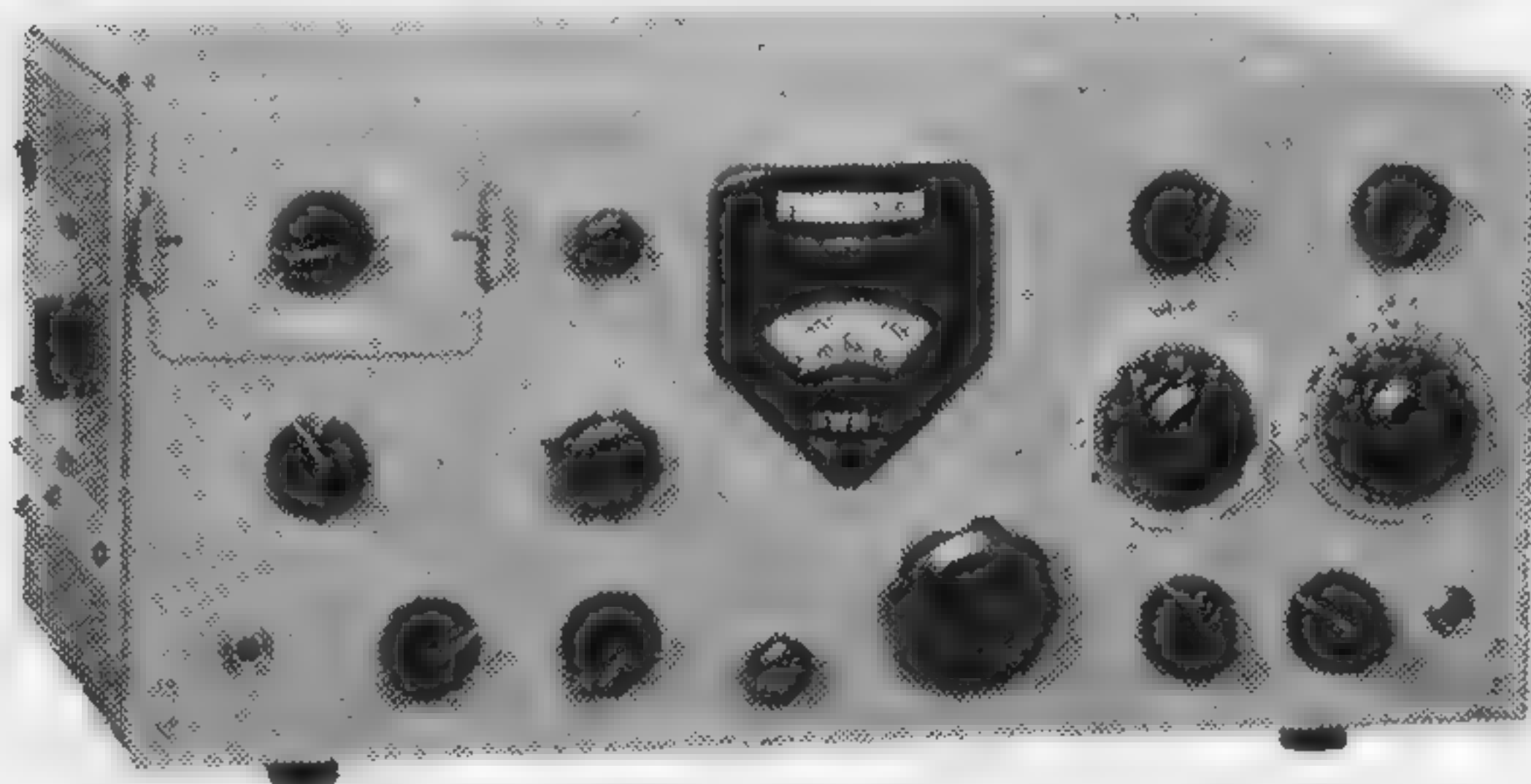
Abbreviation	Question	Answer or Advice	Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	The name of my stations is . . .	QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency [or on . . . kc/s (or Mc/s)].
QRH	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres)	QSZ	Shall I send each word or group more than once?	Send each word or group twice (or . . . times).
QRD	Where are you bound and where are you from?	I am bound for . . . from . . .	QTA	Shall I cancel telegram number . . . as if it had not been sent?	Cancel telegram number . . . as if it had not been sent.
QRG	Will you tell me my exact frequency or that of . . .)?	Your exact frequency (or that of . . . is . . . kc/s (or Mc/s).	QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QRH	Does my frequency vary?	Your frequency varies.	QTC	How many telegrams have you to send?	I have . . . telegrams for you (or for . . .).
QRI	How is the tone of my transmission?	The tone of your transmission is . . . (1. Good; 2. Variable; 3. Bad).	QTE	What is my TRUE bearing from you? What is my TRUE bearing from . . . (call sign)? What is the TRUE bearing of . . . (call sign) from . . . (call sign)?	Your TRUE bearing from me is . . . degrees (at . . . hours) Your TRUE bearing from . . . (call sign) was . . . degrees (at . . . hours) The TRUE bearing of . . . (call sign) from . . . (call sign) was . . . degrees at . . . hours.
QRX	What is the readability of my signals (or those of . . .)?	The readability of your signals (or those of . . .) is . . . (1. Unreadable; 2. Readable now and then; 3. Readable, but with difficulty; 4. Readable; 5. Perfectly readable).	QTH	What is your position in latitude and longitude (or according to any other indication)?	My position is . . . latitude . . . longitude (or according to any other indication).
QRL	Are you busy?	I am busy (or I am busy with . . .). Please do not interfere.	QTI	What is your TRUE track?	My TRUE track is . . . degrees.
QRM	Are you being interfered with?	I am being interfered with.	QTL	What is your TRUE heading?	My TRUE heading is . . . degrees.
QRN	Are you troubled by static?	I am troubled by static.	QTN	At what time did you depart from . . . (place)?	I departed from . . . (place) at . . . hours.
QRO	Shall I increase power?	Increase power.	QTO	Have you left dock (or port)? Are you airborne?	I have left dock (or port) I am airborne.
QRP	Shall I decrease power?	Decrease power.	QTP	Are you going to enter dock (or port)? Are you going to alight (or land)?	I am going to enter dock (or port) I am going to alight (or land).
QRQ	Shall I send faster?	Send faster (. . . words per minute).	QTR	What is the correct time?	The correct time is . . . hours.
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.	QTS	Will you send your call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that your frequency may be measured?	I will send my call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that my frequency may be measured.
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).	QTV	What are the hours during which your station is open?	My station is open from . . . to . . . hours.
QRT	Shall I stop sending?	Stop sending.	QTX	Will you keep your station open for further communication with me until further notice (or until . . . hours)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QRU	Have you anything for me?	I have nothing for you.	QUA	Have you news of . . . (call sign)?	Here is news of . . . (call sign).
QRY	Are you ready?	I am ready.	QUB	Can you give me, in the following order, information concerning: visibility, height of clouds, direction and velocity of ground wind at . . . (place of observation)?	Here is the information requested . . .
QRW	Shall I inform . . . that you are calling him on . . . kc/s (or Mc/s).	Please inform . . . that I am calling him on . . . kc/s (or Mc/s).	QUC	What is the number (or other indication) of the last message you received from me [or from (call sign)]?	The number (or other indication) of the last message I received from you [or from . . . (call sign)] is . . .
QRX	When will you call me again?	I will call you again at . . . hours [on . . . kc/s (or Mc/s)].	QUD	Have you received the urgency signal sent by . . . (call sign of mobile station)?	I have received the urgency signal sent by . . . (call sign of mobile station) at . . . hours.
QRY	What is my turn?	Your turn is Number . . . (Relates to communication.)	QUF	Have you received the distress signal sent by . . . (call sign of mobile station)?	I have received the distress signal sent by . . . (call sign of mobile station) at . . . hours.
QRZ	Who is calling me?	You are being called by . . . [on . . . kc/s (or Mc/s)].	QUG	Will you be forced to alight (or land)?	I am forced to alight (or land immediately). I shall be forced to alight (or land) at . . . (position or place).
QSA	What is the strength of my signals (or those of . . .)?	The strength of your signals (or those of . . .) is . . . (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good).	QUH	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is . . . (units).
QSB	Are my signals fading?	Your signals are fading.			
QSD	Is my keying defective?	Your keying is defective.			
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.			
QSI	What is the charge to be collected per word to . . . including your internal telegraph charge?	The charge to be collected per word to . . . including my internal telegraph charge is . . . francs.			
QSK	Can you hear me between your signals?	I can hear you between my signals.			
QSL	Can you acknowledge receipt?	I am acknowledging receipt.			
QSM	Shall I repeat the last telegram which I sent you, or some previous telegram?	Repeat the last telegram which you sent me [or telegram(s) number(s) . . .].			
QSN	Did you hear me [or . . . (call sign)] on . . . kc/s (or Mc/s)?	I did hear you [or . . . (call sign) on . . . kc/s (or Mc/s).			
QSO	Can you communicate with . . . direct or by relay?	I can communicate with . . . direct (or by relay through . . .).			
QSP	Will you relay to . . . free of charge?	I will relay to . . . free of charge.			
QSQ	Have you a doctor on board [or is . . . (name of person) on board]?	I have a doctor on board [or . . . name of person) is on board].			
QSU	Shall I send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .)?	Send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .).			
QSV	Shall I send a series of V's on this frequency [or . . . kc/s (or Mc/s)]?	Send a series of V's on this frequency [or . . . kc/s (or Mc/s)].			
QSW	Will you send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .)?	I am going to send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .).			



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Collins

KWM-1 Mobile Transceiver



First SSB Mobile Transceiver ever offered. 14-30 mc. 175 watt PEP input. Use for mobile or fixed station without modification. Frequency stability comparable to KWS-1 and 75A-4. Break-in CW using VOX circuits — side tone CW monitor. Self adjusting ALC. Mechanical Filter sideband generation. Complete TVI filtering. Pi-L output network. 6 1/4" H x 14" W x 10" D. Available in limited quantity.

KWM-1 Net Price\$820.00
75A-4 Net Price, complete with Gear Reduction Tuning
Knob, 3.1 kc Mechanical Filter, and tubes\$695.00
KWS-1 Net Price\$2,095.00

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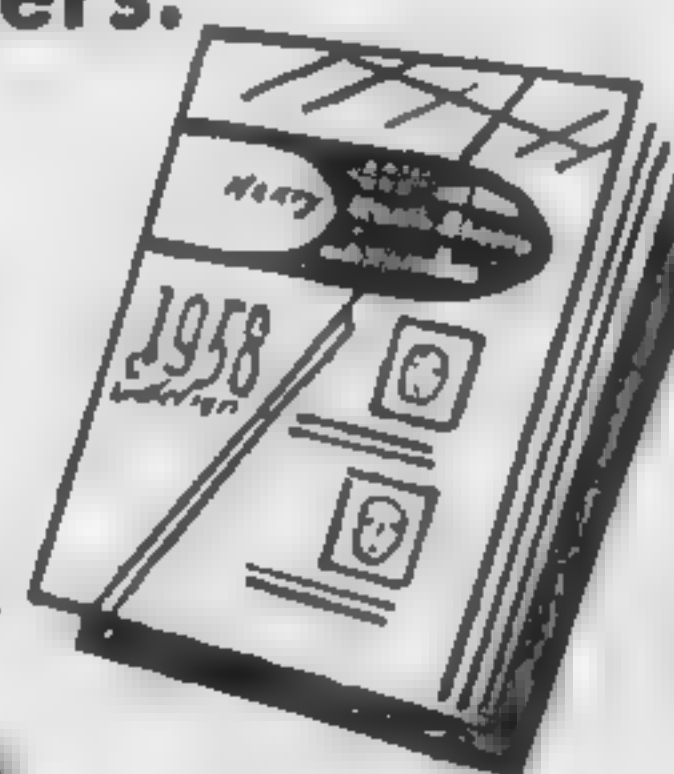
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WORLD TIME CONVERSION CHART IN HOURS

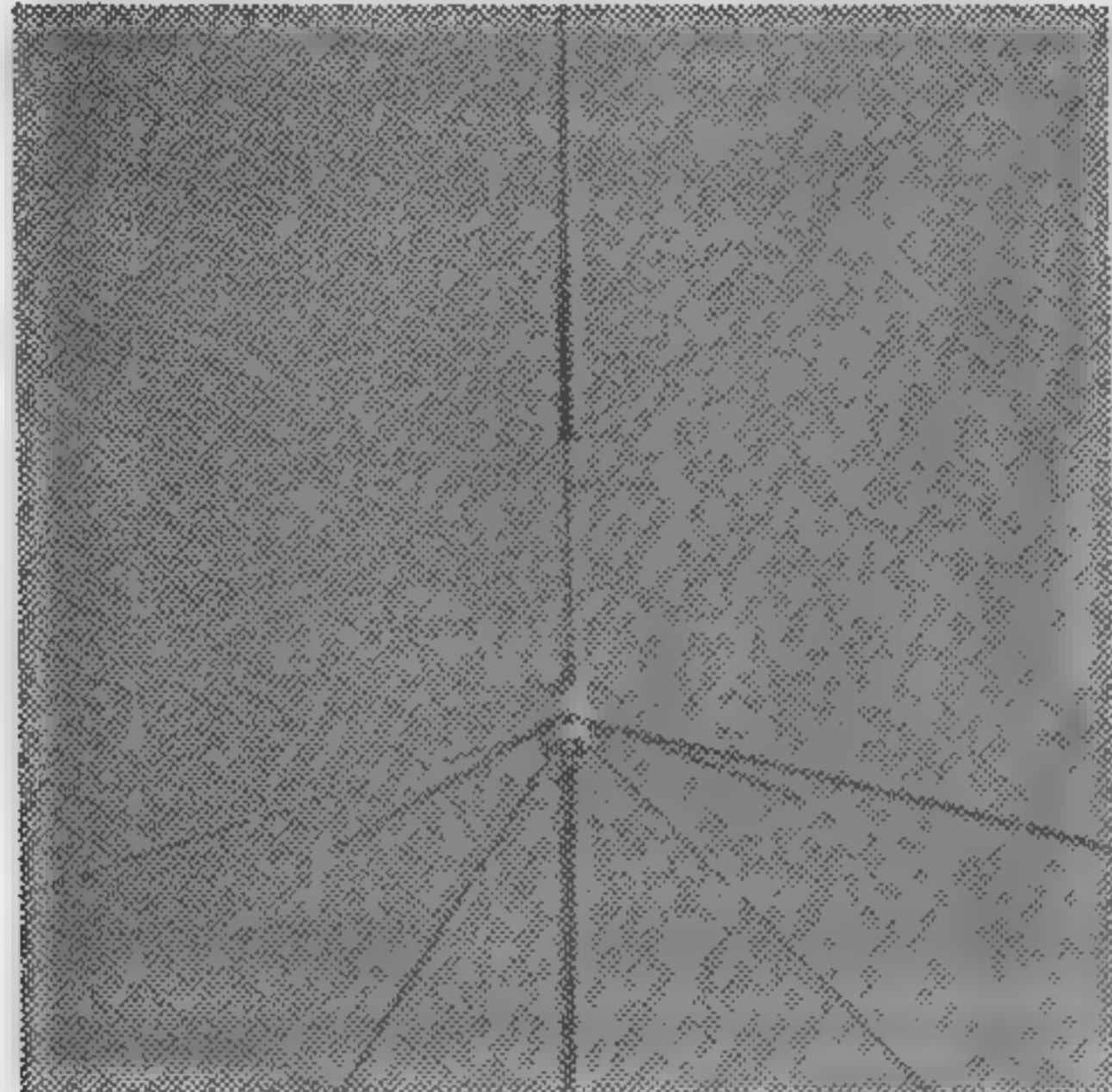
Greenwich Meridian Time, London, Eng- land.	Central Europe, Ber- lin, Geneva, Stock- holm, Vienna.	Eastern Europe, Ath- ens, Cape Town, Cairo, Moscow	Arabia, Armenia, Ethiopia, Madagas- car.	Mauritius, Persia, Reunion Island.	Central Russia, Bom- bay, India.	Calcutta, Novosi- birsk Russia, Tibet.	French Indo China, Siam, Sumatra.	Philippine Islands, Perth, Australia.	Central Australia, Tokyo, Japan.	Eastern Australia, Melbourne, Sydney.	New Zealand, New Caledonia.	International Date Line.	Fiji Islands.	Nome, Alaska. Samoa Islands.	Hawaiian Islands.	Eastern Alaska. Dawson, Juneau.	Pacific Standard Time, Los Angeles, Seattle.	Mountain Standard Time, Calgary, Denver, Phoenix.	Central Standard Time, Chicago, Costa Rica.	Eastern Standard Time, Montreal, New York, Peru.	Atlantic Standard Time, Argentina, Nova Scotia.	Greenland. Rio de Janeiro, Brazil.	Azores.	Iceland. Canary Islands.
0000	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	
0100	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	
0200	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	
0300	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	2AM	1AM	
0400	5AM	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	1AM	
0500	6AM	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	2AM	3AM	2AM	2AM	
0600	7AM	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	3AM	4AM	3AM	3AM	
0700	8AM	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	2AM	4AM	5AM	4AM	4AM	4AM	
0800	9AM	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	3AM	5AM	6AM	5AM	5AM	5AM	5AM	
0900	10AM	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	4AM	6AM	7AM	6AM	6AM	6AM	6AM	6AM	
1000	11AM	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	5AM	7AM	8AM	7AM	7AM	7AM	7AM	7AM	7AM	
1100	Noon	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	6AM	8AM	9AM	8AM	8AM	8AM	8AM	8AM	8AM	8AM	
1200	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	7AM	9AM	10AM	11AM	9AM	9AM	9AM	9AM	9AM	9AM	9AM	
1300	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	8AM	10AM	11AM	12AM	10AM	10AM	10AM	10AM	10AM	10AM	10AM	
1400	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	2AM	2AM	9AM	11AM	12AM	1AM	11AM	11AM	11AM	11AM	11AM	11AM	11AM	
1500	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	3AM	3AM	10AM	12AM	1AM	2AM	12AM	12AM	12AM	12AM	12AM	12AM	12AM	
1600	5PM	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	2AM	2AM	4AM	4AM	11AM	1AM	3AM	4AM	1AM	1AM	1AM	1AM	1AM	1AM	1AM	
1700	6PM	7PM	8PM	9PM	10PM	11PM	Mid Night	1AM	3AM	3AM	5AM	5AM	12AM	2AM	4AM	5AM	2AM	2AM	2AM	2AM	2AM	2AM	2AM	
1800	7PM	8PM	9PM	10PM	11PM	Mid Night	2AM	2AM	4AM	4AM	6AM	6AM	1AM	3AM	5AM	6AM	3AM	3AM	3AM	3AM	3AM	3AM	3AM	
1900	8PM	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	2AM	4AM	6AM	7AM	4AM	4AM	4AM	4AM	4AM	4AM	4AM	
2000	9PM	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	3AM	5AM	7AM	8AM	5AM	5AM	5AM	5AM	5AM	5AM	5AM	
2100	10PM	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	4AM	6AM	8AM	9AM	6AM	6AM	6AM	6AM	6AM	6AM	6AM	
2200	11PM	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	5AM	7AM	9AM	10AM	7AM	7AM	7AM	7AM	7AM	7AM	7AM	
2300	Mid Night	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	6AM	8AM	10AM	11AM	8AM	8AM	8AM	8AM	8AM	8AM	8AM	

With this chart you can convert standard time in any time zone to GMT or tell what time it is in other parts of the world. To correctly use this chart visualize each horizontal line as a complete circle. From your time zone tracing horizontally to the right (Counter Clockwise) it will be tomorrow when you pass midnight and yesterday when you pass the international date line. To the left (Clockwise) it will be yesterday when you pass midnight and tomorrow when you pass the international date line. There is no change in date when you pass both midnight and the international date line going in one direction. For instance at 8 PM in New York Eastern Standard Time it is 2 AM tomorrow in Berlin, Germany and 11 AM tomorrow in Sydney, Australia. Always trace in the shortest direction from your time zone to find what time it is in any other zone. Copyright 1938 Radio Amateur Call Book, Inc., Chicago, USA.

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VERTICALS?



Incorporating the hy-gain Insu-Traps, these Trap Verticals also feature the nylon base assembly for self-support. Use capacity hat principle to increase radiating efficiency. Less than 2:1 SWR on all bands. Single 52 ohm feed line. Mechanically and electrically stable, the Traps are completely weatherproof; have Hi-Q coils and no air dielectric.



DOUBLET?

Hi-Q Insu-Trap circuits used with pressure clamp ends; Insu-Traps available for 10-80M doublets and 10-40M doublets, individually, or complete doublet kits available for 10-80M or 10-40M. Simplified assembly. Send for complete details.

THE hy-gain LINE

THE TRAP VERTICALS

26-AV (for 2 & 6M)	\$16.95
12-AV (10, 15 & 20M)	19.95
14-AV (for 10-40M)	27.95
18-AV (for 10-80M)	69.50
12-AV Mount Kit	8.95
14-AV Mount Kit	9.95

THE TRIBANDERS

Full-Size 2-Element	\$ 69.50
Full-Size 3-Element	99.75
Full-Size 5-Element	395.00
2-Element Mini-Tribander	49.95
3-Element Mini-Tribander	69.95

THE DOUBLET

Insu-Traps for 10-80M, per pair	\$12.50
5-Band Doublet Kit, less traps	15.00
Insu-Traps for 10-40M, per pair	12.50
4-Band Doublet Kit, less traps	14.00

THE VHF BEAMS

6M, 5-Element	\$12.95
6M, 8-Element	24.95
2M, 5-Element	6.95
1 1/4M, 10-Element	9.95
2M, 10-Element	10.95

THE MONOBANDERS

10M, 3-Element	\$21.95
15M, 3-Element	29.95
20M, 3-Element	57.95

THE ROTO-BRAKES

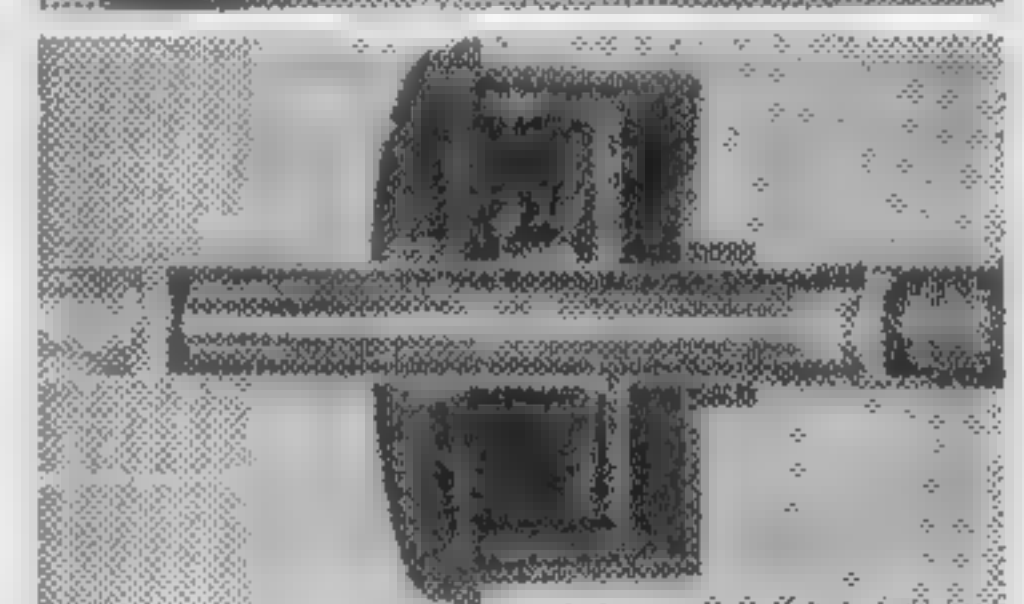
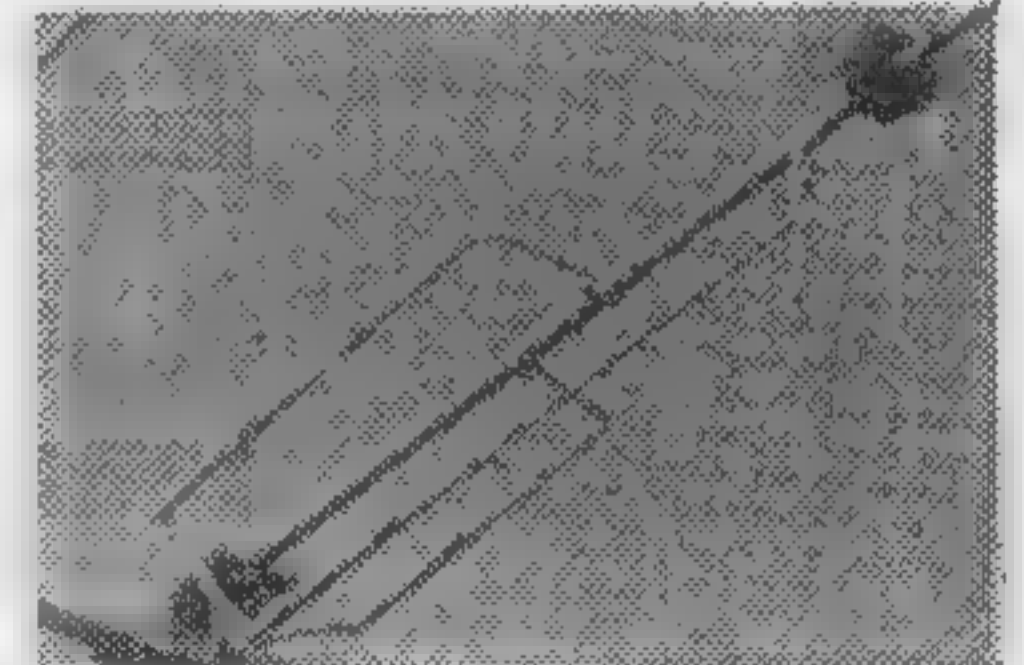
Roto-Brake, Wall Map & Control	\$139.95
Dual Rotator, Heavy Duty Brake	179.95

TRIBANDERS?

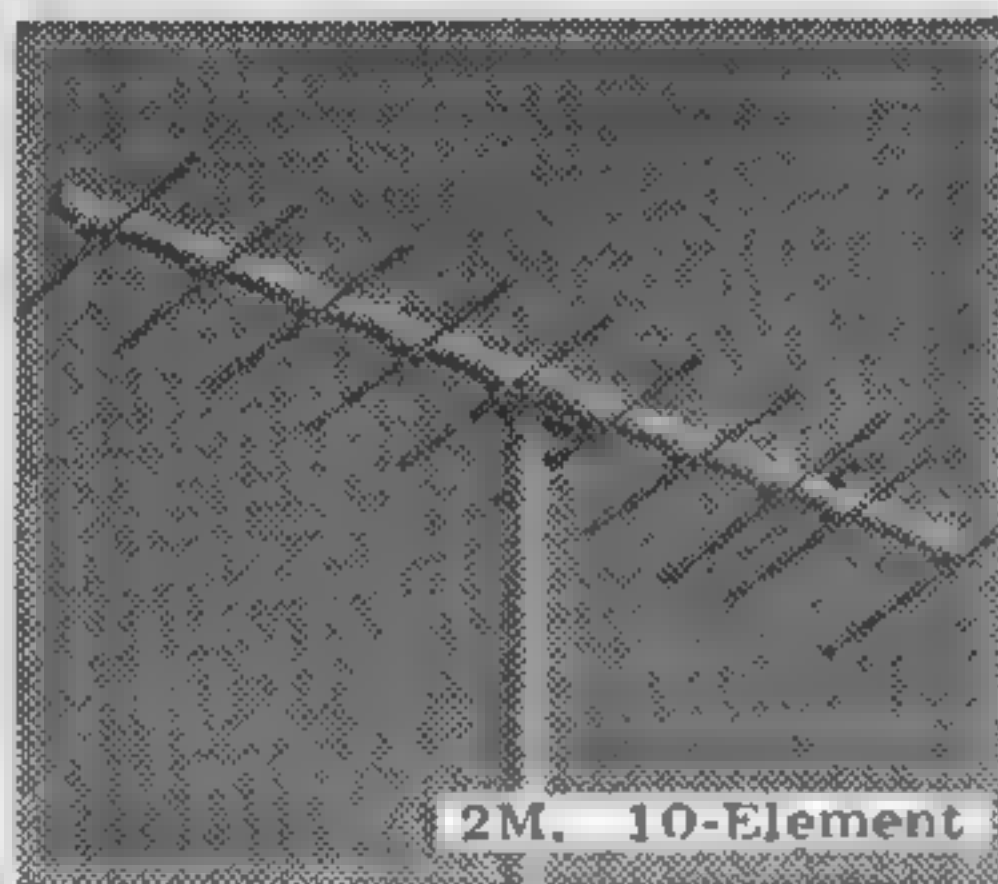
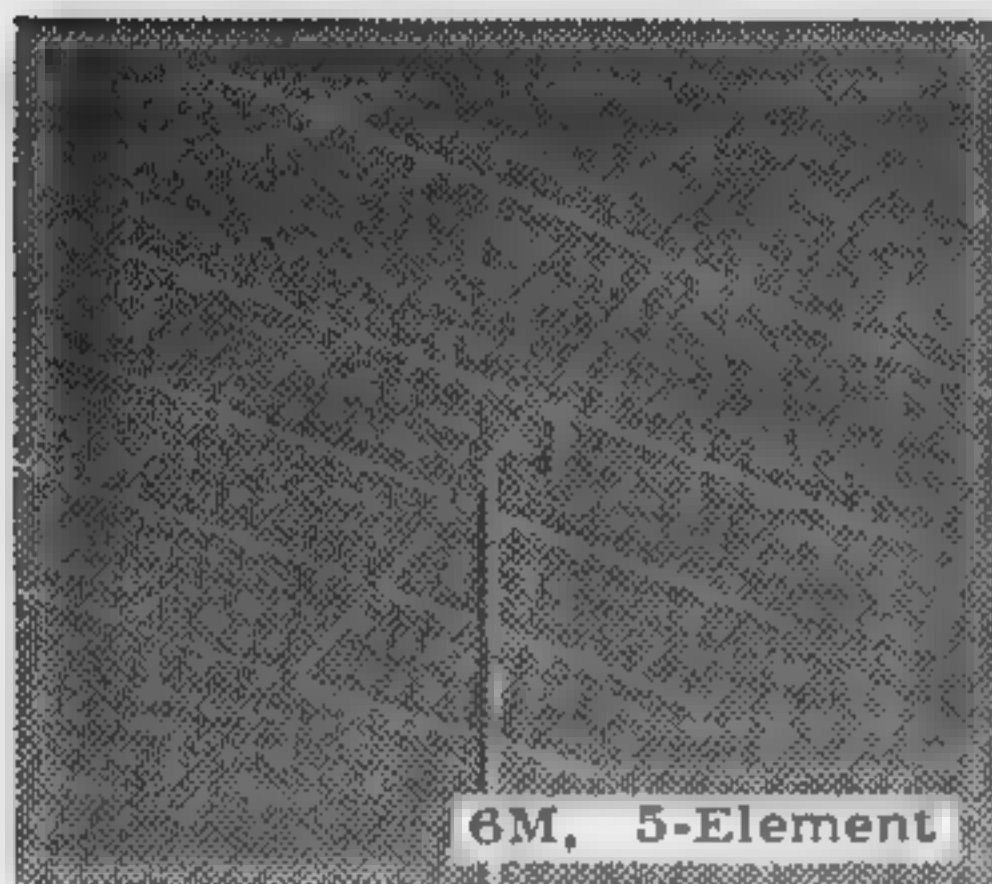
FULL-SIZE TRAP TRIBANDERS



There are more hy-gain trap tribanders in use today than all other three band beams combined. The three element tribander, shown above, is considered the standard of performance in the field of amateur radio communications. F/B Ratio: approx. 25 db. Forward Gain: 8 db average. The 2-element Tribander is for use in limited space. Single transmission line. F/B Ratio: Average 18 db. Forward Gain: 5.8 db average. The 5-element Tribander is the world's champion. Features heavy duty construction, 36', 2x3" rectangular boom of aluminum. F/B Ratio: average 25 db. Forward Gain: average 12 db. All tribanders incorporate the Insu-Trap and the new Triaxial Gamma Match System for perfect 1:1 SWR.

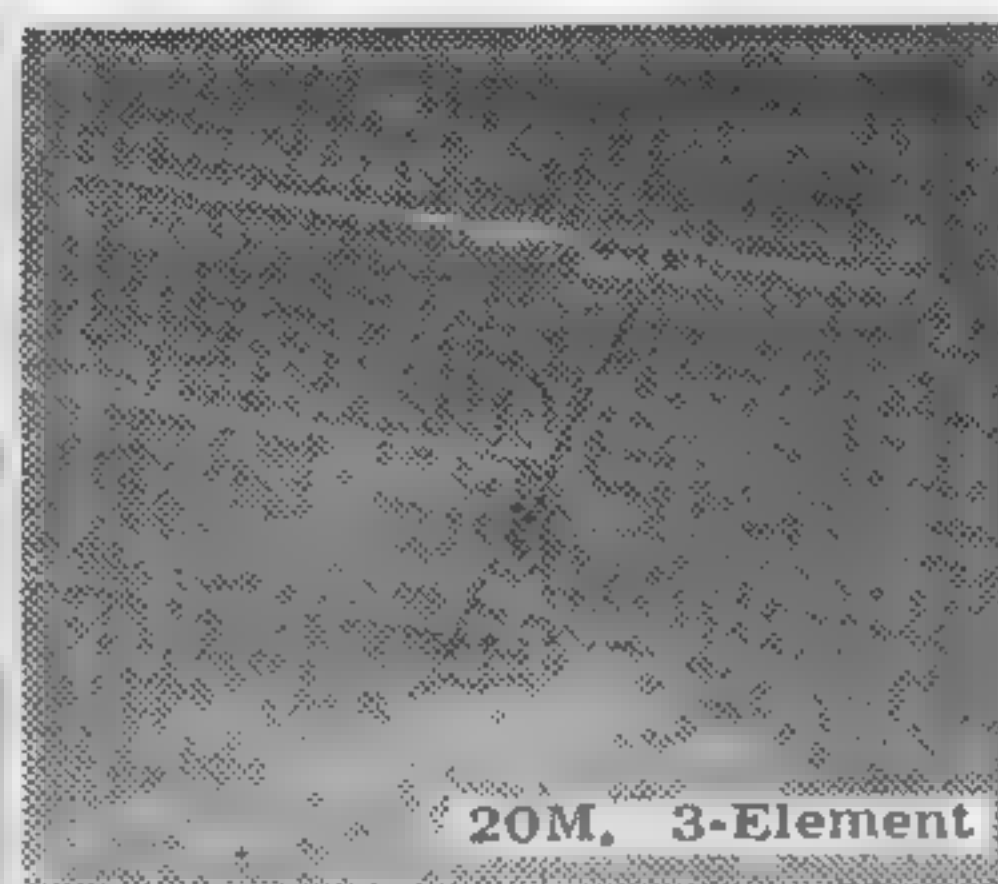


VHF BEAMS?



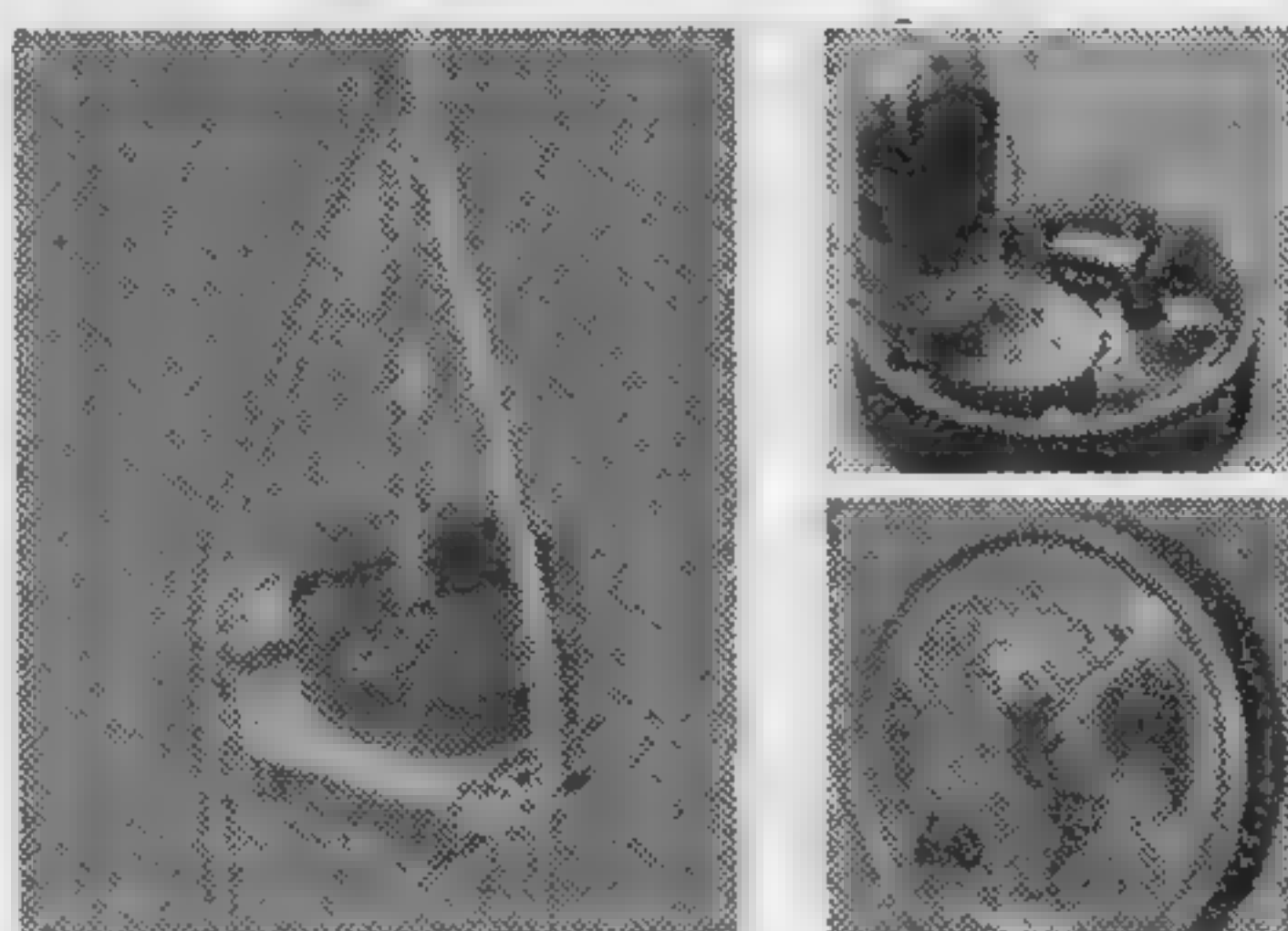
Here are antennas for the VHF bands of 1 1/4, 2 and 6M. Note complete line to right. Sturdy construction throughout. Additional gain available through stacking. The new Gammaxial Gamma Match System used makes possible a perfect 1:1 SWR.

MONOBANDERS?



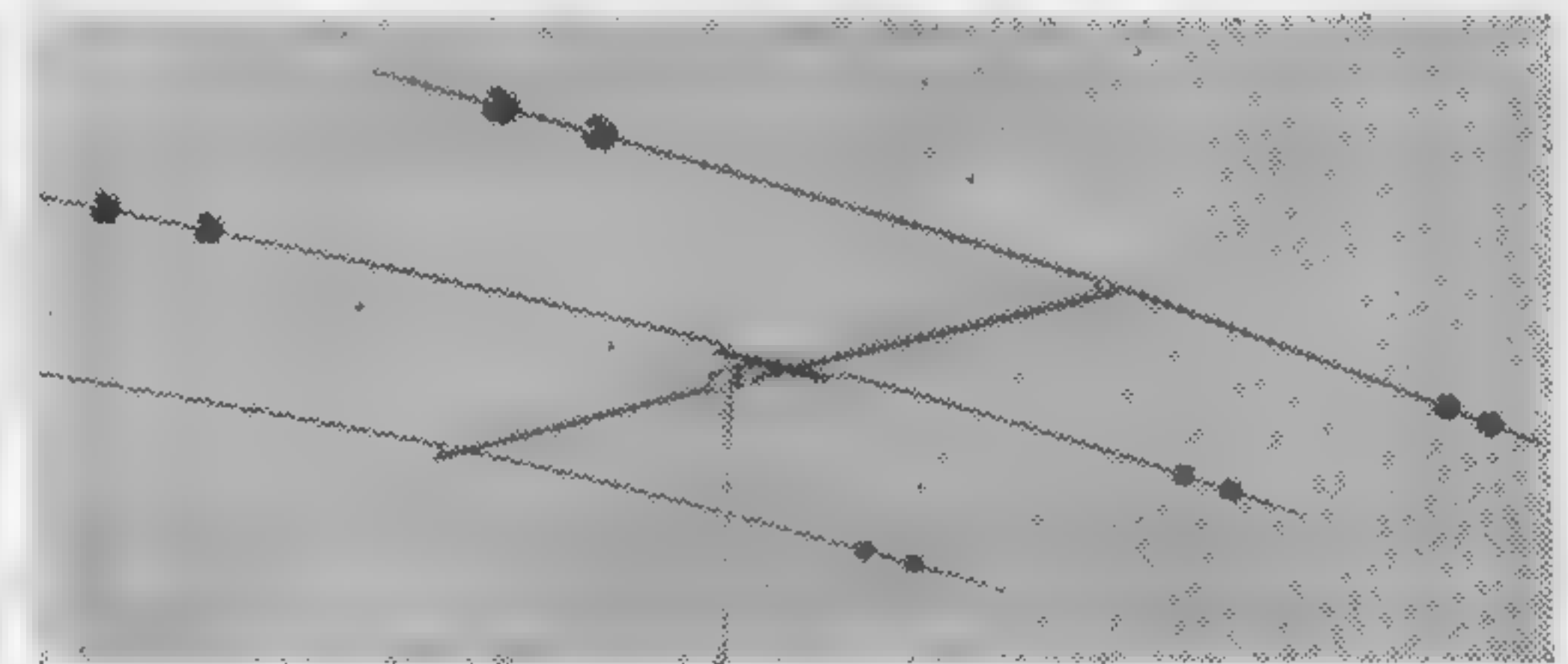
Perfect 1:1 SWR with the new Gammaxial Gamma Match System, pre-calibrated. All beams are pre-tuned and pre-matched, complete with easy-to-follow instructions for quick assembly. Large diameter elements with ruggedly-built Boom/Mast clamps. Available for the 10, 15 and 20 (not shown) Meter bands.

ROTO-BRAKES?



At last, a complete rotating assembly which rotates, holds and indicates... and can be relied on. Includes powerful capacity start 3600 rpm motor built-in. 500 in. lbs. rotating power; 10,000 in. lbs. braking power. Great Circle Wall Map indicator with moving wedge of light 10° wide at perimeter shows beam width and direction. Control box included. Also available, dual-rotator Roto-Brake with twin rotators for extra massive antenna assemblies.

PINT-SIZE MINI-TRIBANDERS



Here's the smallest practical size consistent with efficient operation, to which the world famous Trap Tribanders can be reduced. Allows installation in the smallest city lots. Light weight; easily rotated by most TV rotators. Factory pre-tuned, with dimensions given for assembly in a matter of minutes. The 3-Element Mini-Tribander weighs only 39.8 lbs.; turning radius of 13'10". The 2-Element Mini-Tribander weighs only 33.8 lbs.; turning radius of 12'11". Both incorporate specially designed, lightweight, efficient, completely weatherproof Insu-Traps, and the Split Insulated Dipole Feed.

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140	1244	937	697	353	1229	587	554	194	721	1212	739	596	1291	1697	701	426	285	676	456	1936	319	604	668	907	214	424	748	505	666	1592	521	467	1583	2139	2182	543	371		
BIRMINGHAM, ALA.	140	1174	1052	776	442	1119	578	618	334	581	1095	670	641	1152	1602	567	433	374	579	325	1802	331	665	659	862	182	312	864	638	783	1456	608	400	1466	2013	2082	661	512	
BISMARCK, N. D.	1244	1174	1489	1106	1133	440	734	1014	1359	990	531	506	926	1081	534	1211	881	1529	618	943	1267	965	1838	682	384	1030	1297	1396	1430	1367	1095	1127	779	694	1265	1013	1318	1474	
BOSTON, MASS.	937	1052	1489	400	622	1735	851	551	791	1551	1769	1159	613	2072	2024	1605	807	1017	1251	1259	2596	826	1255	857	1123	943	1359	188	471	271	2300	483	1038	2099	2699	2493	393	673	
BUFFALO, NEW YORK	697	776	1106	400	344	1335	454	173	623	1198	1370	760	216	1692	1640	1286	435	879	861	913	2191	483	1181	458	731	627	1086	292	947	279	1906	178	662	1699	2300	2117	292	598	
CHARLESTON, W. VA.	353	442	1133	622	344																																	350	
CHEYENNE, WYOMING.	1229	1119	440	1735	1335	1246	891	1199	1390	726	96	583	1125	653	521	947	986	1493	560	813	882	1033	1763	878	642	1032	1131	1604	1556	1556	663	1298	795	371	967	973	1477	1540	
CHICAGO, ILLINOIS	587	578	734	851	454	400	891	308	652	803	920	309	238	1252	1248	940	165	863	414	552	1745	269	1188	81	355	397	833	713	699	666	1453	410	262	1260	1858	1737	597	745	
CLEVELAND, OHIO	554	618	1014	551	173	217	1199	308	518	1025	1227	617	90	1525	1541	1114	213	770	700	740	2049	311	1087	335	630	459	924	405	432	360	1749	115	492	1568	2166	2026	306	541	
COLUMBIA, S. C.	194	334	1359	791	623	302	1390	652	518	914	1380	863	585	1484	1837	891	489	256	830	644	2123	395	569	726	998	358	599	605	332	523	1781	448	603	1751	2317	2326	405	178	
DALLAS, TEXAS	721	581	990	1551	1198	935	726	803	1025	914	663	632	999	572	1247	225	763	908	451	293	1240	726	1111	857	862	617	443	1374	1196	1299	887	1070	547	999	1483	1681	1185	1091	
DENVER, COLORADO	1212	1095	531	1769	1370	1256	96	920	1227	1380	663	610	546	983	977	821	411	1023	180	478	1438	476	1333	309	235	525	827	1022	983	973	1155	715	273	953	1550	1467	896	993	
DES MOINES, IOWA	739	670	506	1159	760	673	583	309	617	863	632	610	610	1151	557	591	879	1000	1467	558	780	831	1038	1726	914	700	1023	1082	1631	1566	1579	586	1320	796	371	949	1021	1494	1537
DETROIT, MICHIGAN	596	641	926	613	216	284	1125	238	90	585	999	1156	546	1479	1455	1105	240	831	645	723	1983	316	1152	252	543	470	939	482	522	443	1690	205	455	1492	2091	1938	396	623	
EL PASO, TEXAS	1291	1152	1081	2072	1692	1475	653	1252	1525	1484	572	557	983	1479	1065	676	1264	1473	839	847	701	1254	1643	1279	1157	1169	983	1905	1755	1836	346	1590	1034	689	995	1376	1728	1661	
HELENA, MONTANA	1697	1602	534	2024	1640	1642	521	1248	1837	1247	591	977	1455	1065	1467	1382	1973	1023	1315	924	1453	2260	1206	912	1488	1646	1929	1947	1897	907	1652	1236	403	807	450	1842	1969		
HOUSTON, TEXAS	701	567	1211	1605	1286	984	947	940	1114	891	225	879	821	1105	676	1467	865	821	644	388	1374	803	968	1005	1056	665	318	1420	1204	1341	1017	1137	679	1200	1645	1891	1220	1066	
INDIANAPOLIS, IND.	426	433	831	807	435	262	986	165	263	489	763	1000	411	240	1264	1382	865	699	453	483	1809	107	1024	243	511	251	712	646	573	585	1499	330	231	1356	1949	1872	494	593	
JACKSONVILLE, FLA.	285	374	1529	1017	879	553	1493	863	770	256	908	1467	1023	831	1473	1973	821	699	950	690	2147	594	326	942	1191	499	504	838	546	758	1794	703	751	1837	2374	2455	647	346	
KANSAS CITY, MISSOURI	676	579	618	1251	861	701	560	414	700	830	451	558	180	645	839	1023	644	453	950	325	1356	480	1241	443	413	473	680	1097	1009	1038	1049	781	238	925	1506	1506	945	981	
LITTLE ROCK, ARK.	456	325	943	1259	913	642	813	552	740	644	293	780	478	723	847	1315	388	483	690	325	1480	435	949	618	708	325	355	1081	909	1007	1137	779	291	1148	1688	1785	892	818	
LOS ANGELES, CALIF.	1936	1802	1267	2596	2198	2054	882	1745	2049	2123	1240	831	1438	1983	701	924	1374	1809	2147	1356	1480	1829	2339	1744	1524	1780	1673	2451	2355	2394	357	2136	1589	579	347	959	2300	2294	
LOUISVILLE, KY.	319	331	965	826	483	225	1033	269	311	395	726	1038	476	316	1254	1453	803	107	594	480	435	1829	919	349	605	154	623	652	529	582	1508	344	242	1402	1986	1943	476	516	
MIAMI, FLORIDA	604	665	1838	1255	1181	870	1763	1188	1087	569	1111	1726	1333	1152	1643	2260	968	1024	326	1241	949	2339	919	1267	1511	815	669	1092	797	1019	1982	1010	1061	2089	2594	2734	923	598	
MILWAUKEE, WIS.	668	659	682	857	458	461	878	81	335	726	357	914	309	252	1279	1206	1005	243	942	443	618	1744	349	1267	299	478	910	733	749	694	1464	446	327	1242	1842	1692	637	810	
MINNEAPOLIS, MINN.	907	862	384	1123	731	755	642	355	630	998	862	700	235	543	1157	912	1056	511	1191	413	708	1524	605	1511	299	697	1051	1018	1047	985	1280	743	466	987	1584	1395	934	1100	
NASHVILLE, TENN.	214	182	1030	943	627	322	1032	397	459	358	617	1023	525	470	1169	1488	665	251	499	473	325	1780	154	815	478	697	469	761	586	685	1446	472	254	1393	1963	1975	569	517	
NEW ORLEANS, LA.	424	312	1297	1359	1086	754	1131	833	924	599	443	1082	827	939	983	1646	318	712	504	680	355	1673	623	669	910	1051	469	1171	296	83	2145	317	875	1972	2571	2408	205	499	
NEW YORK, N. Y.	748	864	1396	188	292	440	1604	713	405	605	1374	1631	1022	482	1905	1929	1420	646	838	1097	1081	2451	652	1092	733	1018	761	1171	296	83	2145	317	875	1972	2571	2408	205	499	
NORFOLK, VA.	505	638	1430	471	438	311	1556	699	432	332	1196	1566	983	522	1755	1947	1204	573	546	1009	909	2355	529	797	749	1047	586	926	296	222	2028	318	771	1927	2515	2436	146	203	
PHILADELPHIA, PA.	666	783	1367	271	279	365	1556	666	360	523	1299	1579	973	443	1836	1897	1341	585	758	1038	1007	2394	582	1019	694	985	685	1089	83	222	2083	259	811	1925	2523	2380	123	423	
PHOENIX, ARIZONA	1552	1456	1095	2300	1906	1733	663	1453	1749	1781	887	586	1155	1690	346	907	1017	1499	1794	1049	1137	357	1508	1982	1464	1280	1446	1316	2145	2028	2083	1828	1272	504	653	1114	1983	1954	
PITTSBURGH, PA.	521	608	1127	483	178	168	1298	410	115	448	1070	1320	715	205	1590	1652	1137	330	703	781	779	2136	344	1010	446	743	472	919	317	318	259	1828	559	1668	2264	2138	192	442	
ST. LOUIS, MO.	467	400	779	1038	662	465	795	262	492	603	547	796	273	455	1034	1236	679	231	751	238	291	1589	242	1061	327	466	254	598	875	771	811	1272	559	1162	1744	1724	712	746	
SALT LAKE CITY, UTAH	1583	1466	694	2099	1699	1616	371	1260	1568	1751	999	371	953	1492	689	403	1200	1356	1837	925	1148	579	1402	2089	1242	987	1393	1434	1972	1927	1925	504	1668	1162	600	701	1848	1906	
SAN FRANCISCO, CALIF.	2139	2013	1265	2699	2300	2205	967	1858	2166	2317	1483	949	1550	2091	995	807	1645	1949	2374	1506	1688	347	1986	2594	1842	1584	1963	1975	2101	2408	2436	2380	1114						

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GREAT CIRCLE BEARINGS

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The table below gives the great circle bearings in degrees from Los Angeles, California to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is shown. These bearings were compiled from information furnished by the U. S. Coast and Geodetic Survey.

Prefix	Country	Bearing	Prefix	Country	Bearing	Prefix	Country	Bearing
AC3	SIKKIM	334	KM6	MIDWAY ISLAND	281	VK6	Perth	256
AC4	TIBET, Lhasa	333	KP4	PUERTO RICO	94	VK7	TASMANIA, Hobart	234
AG2	TRIESTE	30	KP6	PALMYRA ISLAND	245	VK9	NORFOLK ISLAND	235
AP	PAKISTAN, Karachi	354	KR6	OKINAWA ISLAND	304	VO	PAPUA TERRITORY, Port Moresby	267
C	CHINA, Chungking	322	KS4	SWAN ISLAND	110	VO	NEWFOUNDLAND, St. John's	52
	Pekin	322	KS6	SAMOA	236	VP1	BRITISH HONDURAS	113
	Shanghai	312	KV4	VIRGIN ISLANDS	94	VP2	LEEWARD and WINDWARD ISLANDS	95
CE	CHILE, Santiago	141	KW6	WAKE ISLAND	278	VP3	BRITISH GUIANA, Georgetown	100
CM	CUBA, Havana	100	KX6	MARSHALL ISLANDS	265	VP4	TRINIDAD	99
CN2	TANGIER ZONE	48	KZ5	CANAL ZONE	105	VP5	JAMAICA	102
CN8	FRENCH MOROCCO, Casablanca	51	LA	NORWAY, Oslo	24	VP6	BARBADOS ISLANDS	95
CP	BOLIVIA, La Paz	128	LI	LIBYA, Tripoli	65	VP7	BAHAMAS ISLANDS	92
CR4	CAPE VERDE ISLANDS	74	LU	ARGENTINA, Buenos Aires	135	VP8	FALKLAND ISLANDS	135
CR5	PORTUGUESE GUINEA	73	LX	LUXEMBOURG	33		South Georgia Island	140
CR6	ANGOLA, Nova Lisboa	75	LZ	BULGARIA, Sofia	28		South Orkney Islands	130
CR7	MOZAMBIQUE, Lourenco Marques	81	MB9	AUSTRIA, Vienna	30	VP9	BERMUDA	77
	Mozambique	52	MD1	CIRENAICA	36	VQ1	ZANZIBAR	42
CR8	GOA	346	MD2	TRIPOLITANIA	40	VQ2	NORTHERN RHODESIA, Lusaka	67
CR9	MACAU	312	MD3	ERITREA, Asmara	28	VQ3	TANGANYIKA, Dar-Es-Salaam	44
CR10	TIMOR ISLAND	277	MD4	BRITISH SOMALILAND	23	VQ4	KENYA, Nairobi	40
CT1	PORTUGAL, Lisbon	48	MD5	SUEZ CANAL ZONE	27	VQ5	UGANDA	44
CT2	AZORES ISLAND	55	MC6	IRAQ, Baghdad	16	VQ6	BRITISH SOMALILAND	21
CT3	MADERIA ISLANDS	57	MF2	TRIESTE (British)	32	VQ8	CHAGOS ISLANDS	339
CX	URUGUAY, Montevideo	134	MI3	ERITREA, Asmara	28		Mauritius	15
DL	GERMANY, Berlin	27	MP4	BAHRAIN ISLANDS and OMAN	12	VQ9	SEYCHELLES	11
DU	PHILIPPINE ISLANDS, Manila	300	OA	PERU, Lima	132	VR1	GILBERT ISLANDS	259
EA	SPAIN, Madrid	44	OD5	LEBANON, Beyrouth	23	VR2	FIJI ISLANDS	240
EA6	BALEARIC ISLANDS	41	OH	FINLAND, Helsinki	18	VR3	FANNING ISLAND	241
EA8	CANARY ISLANDS	60	OE	AUSTRIA, Vienna	30	VR4	SOLOMON ISLAND	260
EA9	SPANISH MOROCCO	50	OK	CZECHOSLOVAKIA, Prague	28	VR5	TONGA ISLANDS	234
EL	IRELAND, Dublin	35	ON	BELGIUM, Brussels	33	VR6	PITCAIRN ISLAND	183
EI	LIBERIA, Monrovia	74	OQ5	BELGIAN CONGO, Elisabethville	63	VS	MALAYA, Singapore	303
EP	IRAN, Tehran	9		Leopoldville	67	VS4	BRITISH NORTH BORNEO	295
ET	ETHIOPIA, Addis Ababa	31		Stanleyville	54	VS5	BRUNEL and SARAWAK	296
F	FRANCE, Paris	35	OX	GREENLAND, Godthaab	32	VS6	HONG KONG	310
FA	ALGERIA, Algiers	43	OY	FAEROES ISLANDS	28	VS7	CEYLON	332
FB8	MADAGASCAR, Antsirana	31	OZ	DENMARK, Copenhagen	26	VS9	ADEN, Aden	20
	Tananarive	43	PA	NETHERLANDS, Amsterdam	31	VU	INDIA, Bombay	347
FC	CORSICA	36	PK	JAVA, Batavia	294		Calcutta	332
FD8	TOGOLAND	64	PK4	SUMATRA	304		Delhi	345
FEB	FRENCH CAMEROONS	61	PK5	BORNEO	294	VU4	LACCADIVE ISLANDS	347
FF8	FRENCH WEST AFRICA, Dakar	72	PK6	CELEBES ISLAND	286	VU5	ANDAMAN ISLANDS	322
FG8	GAUDELOUPE	95	PK7	NETHERLAND NEW GUINEA	275	XE	MEXICO, Mexico City	126
FI8	FRENCH INDO CHINA, Saigon	309	PX	ANDORRA	40	XZ	BURMA, Rangoon	322
FK8	NEW CALEDONIA, Noumea	257	PY	BRAZIL, Natal	99	YA	AFGHANISTAN, Kandahar	356
FL8	FRENCH SOMALILAND, Djibouti	26		Rio de Janeiro	117	YI	IRAQ, Baghdad	15
FM8	MARTINIQUE	96	PZ	SURINAM, (Netherlands Guiana)	101	YJ	NEW HEBRIDES	244
F08	FRENCH OCEANIA, Tahiti	214	SM	SWEDEN, Stockholm	21	YK	SYRIA	22
FP8	MIQUELON and ST. PIERRE IS.	55	SP	POLAND, Warsaw	24	YN	NICARAGUA, Managua	119
FQ8	FRENCH EQUATORIAL AFRICA	57	ST	ANGLO-EGYPTIAN SUDAN, Khartoum	34	YO	ROMANIA, Bucharest	24
FR8	REUNION ISLAND	26	SU	Egypt, Cairo	28	YS	SALVADOR, San Salvador	120
FT4	TUNISIA, Tunis	39	SV	GREECE, Athens	29	YT	YUGOSLAVIA, Belgrade	28
FU8	NEW HEBRIDES	245	SV5	DODECANESE ISLANDS	27	YV	VENEZUELA, Caracas	104
FY8	FRENCH GUIANA, Cayenne	100	TA	TURKEY, Ankara	22	ZA	ALBANIA, Tirana	30
G	ENGLAND, London	34	TF	ICELAND, Reykjavik	29	ZB1	MALTA	37
GC	CHANNEL ISLANDS	35	TG	GUATEMALA, Guatemala City	121	ZB2	GIBRALTAR	48
GD	ISLE OF MAN	33	TI	COSTA RICA	119	ZC1	TRANSJORDAN	24
GI	NORTHERN IRELAND, Belfast	34	TR	LIBYA, Tripoli	65	ZC2	COCOS ISLANDS	293
GM	SCOTLAND, Glasgow	32	TT	TANNU TUVA, Kyzyl Khot	340	ZC3	CHRISTMAS ISLAND	289
GW	WALES	35	U	SOVIET UNION, Moscow	13	ZC4	CYPRUS	23
HA	HUNGARY, Budapest	28	UB5	UKRAINE	14	ZD1	SIERRA LEONE, Freetown	74
HB	SWITZERLAND, Bern	34	UC5	WHITE RUSSIA	20	ZD2	NIGERIA, Lagos	65
HC	ECUADOR, Quito	124	UD6	AZERBAIJAN	13	ZD3	GAMBIA	73
HC8	GALAPAGOS ISLANDS	138	UF6	GEORGIA	13	ZD4	GOLD COAST, Accra	69
HE1	LEICHTENSTEIN	32	UG6	ARMENIA	13	ZD6	NYASALAND	60
HH	HAITI, Port-au-Prince	98	UH8	TURKOMAN	2	ZD7	ST. HELENA	93
HI	DOMINICAN REPUBLIC	96	UI8	UZBEK	355	ZD8	ASENCION ISLAND	90
HK	COLOMBIA, Bogota	116	UJ8	TADZHIK	353	ZD9	TRISTAN da CUNHA	117
H1	KOREA, Seoul	312	UL7	KAZAKH	358	ZE	SOUTHERN RHODESIA, Salisbury	69
HP	PANAMA	105	UM8	KIRGHIZ	351	ZK1	COOK ISLANDS	224
HR	HONDURAS, Tegucigalpa	103	UN1	KARELO-FINNISH REPUBLIC	14	ZK2	NIUE	231
HS	SIAM, Bangkok	315	UO5	MOLDAVIA	23	ZL1	NEW ZEALAND, Auckland	228
HV	VATICAN CITY	34	UP	LITHUANIA	21	ZL2	Wellington	224
HZ	SAUDI ARABIA, Mecca	23	UQ	LATVIA	20	ZL3	Christchurch	223
I	ITALY, Rome	34	UR	ESTONIA	18	ZL4	Dunedin	222
IS	SARDINIA	38	VE1	CANADA, Halifax	59	ZM6	SAMOA (British)	236
JA	JAPAN, Tokyo	306	VE2	Montreal	58	ZP	PARAGUAY, Asuncion	127
KB6	BAKER ISLAND	250	VE3	Toronto	60	ZS	UNION of SOUTH AFRICA, Capetown	102
KG6	CAROLINE ISLANDS	218	VE4	Winnipeg	39		Durban	90
KG4	GUANTANAMO BAY, Cuba	98	VE5	Saskatoon	21		Johannesburg	84
KG6	GUAM	283	VE6	Edmonton	8	ZS3	SOUTH WEST AFRICA, Windhoek	87
KG61	IWO JIMA ISLAND	296	VE7	Vancouver	348	ZS7	SWAZILAND	84
KG6S	SAIPAN ISLAND	284	VE8	Fort Nelson	354	ZS8	BASUTOLAND	92
KG6T	TINIAN ISLAND	284	VK1	HEARD ISLAND	200	ZS9	BECHUANALAND	85
KH6	HAWAIIAN ISLANDS, Honolulu	260	VK2	AUSTRALIA, Sydney	241	3A2	MONACO	35
KJ6	JOHNSTON ISLAND	264	VK3	Melbourne	240	3V8	TUNISIA, Tunis	39
KL7	ALASKA, Anchorage	333	VK4	Brisbane	246	4X4	ISRAEL	24
	Fairbanks	339	VK5	Darwin	270	5A2	LIBYA	39
						9S4	SAARLAND	32

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W3BEO		
W3WW	Paul Keller	On the net
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Your call letters can now be cast in solid metal, stipple finish, black background with shiny-like letters. Ideal for mounting in your shack or as a desk plate. (This sign is so heavy that it can be used as a paper weight.) You can proudly display your call letters on this neat, attractive solid cast metal sign. Size 3 3/4" x 7 1/4". Easily worth \$4.00. Our low price only \$2.25. Sold only within the continental limits of the United States. Remittance should accompany all orders. Extra fast service. Satisfaction guaranteed or your money back.

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Enclosed is my remittance.

Name _____

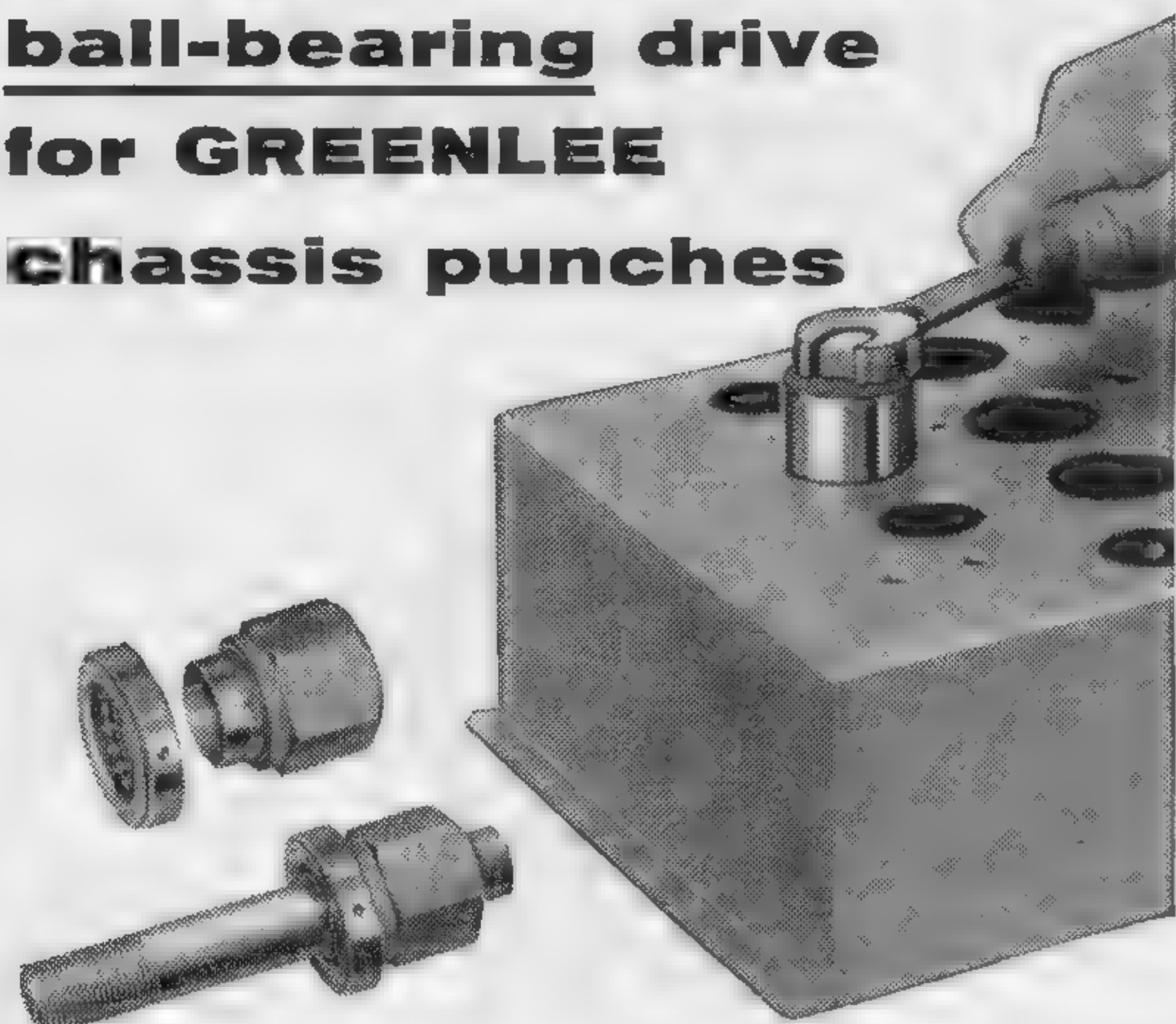
Address _____

CHICAGO, ILLINOIS

The table below shows the great circle bearing in degrees from the point as indicated above to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is given. These bearings were compiled from information supplied by the U.S. Coast and Geodetic Survey.

Prefix	Country	Bearing	Prefix	Country	Bearing	Prefix	Country	Bearing
AC3	SIKKIM	3	KM6	MIDWAY ISLAND	290	VK6	Perth	291
AC4	TIBET, Lhasa	1	KP4	PUERTO RICO	123	VK7	TASMANIA, Hobart	248
AG2	TRIESTE	48	KP6	PALMYRA ISLAND	264	VK9	NORFOLK ISLAND	254
AP	PAKISTAN, Karachi	25	KR6	OKINAWA ISLAND	327		PAPUA TERRITORY, Port Moresby	287
C	CHINA, Chungking	348	KS4	SWAN ISLAND	173	VO	NEWFOUNDLAND, St. John's	65
	Pekin	342	KS6	SAMOA	255	VP1	BRITISH HONDURAS	181
	Shanghai	335	KV4	VIRGIN ISLANDS	133	VP2	LEEWARD and WINDWARD ISLANDS	133
CE	CHILE, Santiago	166	KW6	WAKE ISLAND	294	VP3	BRITISH GUIANA, Georgetown	135
CM	CUBA, Havana	165	KX6	MARSHALL ISLANDS	285	VP4	TRINIDAD	135
CN2	TANGIER ZONE	66	KZ5	CANAL ZONE	168	VP5	JAMAICA	162
CN8	FRENCH MOROCCO, Casablanca	69	LA	NORWAY, Oslo	36	VP6	BARBADOS ISLANDS	131
CP	BOLIVIA, La Paz	158	LI	LIBYA, Tripoli	58	VP7	BAHAMAS ISLANDS	150
CR4	CAPE VERDE ISLANDS	96	LU	ARGENTINA, Buenos Aires	156	VP8	FALKLAND ISLANDS	155
CR5	PORTUGUESE GUINEA	93	LX	LUXEMBOURG	48		South Georgia Island	142
CR6	ANGOLA, Nova Lisboa	92	LZ	BULGARIA, Sofia	46		South Orkney Islands	140
CR7	MOZAMBIQUE, Lourenco Marques	92	MB9	AUSTRIA, Vienna	45	VP9	BERMUDA	112
	Mocambique	75	MD1	CIRENAICA	54	VQ1	ZANZIBAR	69
CR8	GOA	22	MD2	TRIPOLITANIA	59	VQ2	NORTHERN RHODESIA, Lusaka	86
CR9	MACAU	340	MD3	ERITREA, Asmara	53	VQ3	TANGANYIKA, Dar-Es-Salaam	70
CR10	TIMOR ISLAND	319	MD4	BRITISH SOMALILAND	51	VQ4	KENYA, Nairobi	68
CT1	PORTUGAL, Lisbon	65	MD5	SUEZ CANAL ZONE	49	VQ5	UGANDA	70
CT2	AZORES	74	MD6	IRAQ, Baghdad	39	VQ6	BRITISH SOMALILAND	52
CT3	MADERIA ISLANDS	75	MF2	TRIESTE (British)	48	VQ8	CHAGOS ISLANDS	34
CX	URUGUAY, Montevideo	154	MI3	ERITREA, Asmara	53		Mauritius	66
DL	GERMANY, Berlin	42	MP4	BAHREIN ISLANDS and OMAN	38	VQ9	SEYCHELLES	53
DU	PHILIPPINE ISLANDS, Manila	328	OA	PERU, Lima	167	VR1	GILBERT ISLANDS	255
EA	SPAIN, Madrid	60	OD5	LEBANON, Beyrouth	44	VR2	FILIPINOS	259
EA6	BALEARIC ISLANDS	58	OH	FINLAND, Helsinki	31	VR3	FANNING ISLAND	262
EA8	CANARY ISLANDS	79	OE	AUSTRIA, Vienna	45	VR4	SOLOMON ISLANDS	280
EA9	SPANISH MOROCCO	67	OK	CZECHOSLOVAKIA, Prague	44	VR5	TONGA ISLANDS	253
EI	IRELAND, Dublin	48	ON	BELGIUM, Brussels	47	VR6	PITCAIRN ISLAND	220
EL	LIBERIA, Monrovia	94	OQ5	BELGIAN CONGO, Elisabethville	82	VS	MALAYA, Singapore	343
EP	IRAN, Tehran	32		Leopoldville	85	VS4	BRITISH NORTH BORNEO	327
ET	ETHIOPIA, Addis Ababa	58		Stanleyville	74	VS5	BRUNEI and SARAWAK	330
F	FRANCE, Paris	50	OX	GREENLAND, Godthaab	31	VS6	HONG KONG	338
FA	ALGERIA, Algiers	61	OY	FAEROES ISLANDS	38	VS7	CEYLON	16
FB8	MADAGASCAR, Tananarive	74	OZ	DENMARK, Copenhagen	39	VS9	ADEN, Aden	49
FC	CORSICA	53	PA	NETHERLANDS, Amsterdam	45	VU	INDIA, Bombay	22
FD8	TOGOLAND	85		JAVA, Batavia	335		Calcutta	15
FE8	FRENCH CAMEROONS	80	PK4	SUMATRA	347		Delhi	21
FF8	FRENCH WEST AFRICA, Dakar	92	PK5	BORNEO	329	VU4	LACCADIVE ISLANDS	25
FG8	GAUDELOUPE	132	PK6	CELEBES ISLAND	320	VU5	ANDAMAN ISLANDS	359
FI8	FRENCH INDO CHINA, Saigon	343	PK7	NETHERLAND NEW GUINEA	299	XE	MEXICO, Mexico City	207
FK8	NEW CALEDONIA, Noumea	264	PX	ANDORRA	56	XZ	BURMA, Rangoon	355
FL8	FRENCH SOMALILAND, Djibouti	53	PY	BRAZIL, Natal	122	YA	AFGHANISTAN, Kandahar	23
FM8	MARTINIQUE	132		Rio de Janeiro	138	YI	IRAQ, Baghdad	38
FO8	FRENCH OCEANIA, Tahiti	239	PZ	SURINAM, (Netherland Guiana)	133	YJ	NEW HEBRIDES	266
FP8	MIQUELON and St. PIERRE IS.	68	SM	SWEDEN, Stockholm	34	YK	SYRIA	42
FQ8	FRENCH EQUATORIAL AFRICA	77	SP	POLAND, Warsaw	39	YN	NICARAGUA, Managua	178
FR8	REUNION ISLAND	65	ST	ANGLO-EGYPTIAN SUDAN, Khartoum	58	YO	ROMANIA, Bucharest	43
FT4	TUNISIA, Tunis	57	SU	Egypt, Cairo	49	YS	SALVADOR, San Salvador	182
FU8	NEW HEBRIDES	264	SV	GREECE, Athens	49	YT	YUGOSLAVIA, Belgrade	46
FY8	FRENCH GUIANA, Cayenne	130	SV5	DODECANESE ISLANDS	49	YV	VENEZUELA, Caracas	145
G	ENGLAND, London	48	TA	TURKEY, Ankara	42	ZA	ALBANIA, Tirana	49
GC	CHANNEL ISLANDS	50	TF	ICELAND, Reykjavik	36	ZB1	MALTA	56
GD	ISLE OF MAN	47	TG	GUATEMALA, Guatemala City	186	ZB2	GIBRALTAR	67
GI	NORTHERN IRELAND, Belfast	47	TI	COSTA RICA	173	ZC1	TRANSJORDAN	47
GM	SCOTLAND, Glasgow	45	TR	LIBYA, Tripoli	59	ZC2	COCOS ISLANDS	350
GW	WALES	49	TT	TANNU TUVA, Kyzyl Khot	358	ZC3	CHRISTMAS ISLAND	335
HA	HUNGARY, Budapest	44	U	SOVIET UNION, Moscow	29	ZC4	CYPRUS	44
HB	SWITZERLAND, Bern	49	UB5	UKRAINE	36	ZD1	SIERRA LEONE, Freetown	94
HC	ECUADOR, Quito	167	UC5	WHITE RUSSIA	35	ZD2	NIGERIA, Lagos	84
HC8	GALAPAGOS ISLANDS	185	UD6	AZERBAIJAN	31	ZD3	GAMBIA	92
HE1	LEICHTENSTEIN	49	UF6	GEORGIA	36	ZD4	GOLD COAST, Accra	88
HH	HAITI, Port-au-Prince	145	UG6	ARMENIA	37	ZD6	NYASALAND	81
HI	DOMINICAN REPUBLIC	139	UH8	TURKOMAN	26	ZD7	ST. HELENA	109
HK	COLOMBIA, Bogota	158	UI8	UZBEK	19	ZD8	ASENCION ISLAND	107
HL1	KOREA, Seoul	334	UJ8	TADZHIK	17	ZD9	TRISTAN da CUNHA	112
HP	PANAMA	168	UL7	KAZAKH	14	ZE	SOUTHERN RHODESIA, Salisbury	86
HR	HONDURAS, Tegucigalpa	181	UM8	KIRGHIZ	12	ZK1	COOK ISLANDS	246
HS	SIAM, Bangkok	351	UN1	KARELO-FINNISH REPUBLIC	29	ZK2	NIUE	251
HV	VATICAN CITY	51	UO5	MOLDAVIA	39	ZL1	NEW ZEALAND, Auckland	245
HZ	SAUDI ARABIA, Mecca	49	UP	LITHUANIA	35	ZL2	Wellington	240
I	ITALY, Rome	51	UQ	LATVIA	34	ZL3	Christchurch	238
IS	SARDINIA	55	UR	ESTONIA	32	ZL4	Dunedin	237
JA	JAPAN, Tokyo	323	YE1	CANADA, Halifax	73	ZM6	SAMOA (British)	255
KB6	BAKER ISLAND	270	VE2	Montreal	66	ZP	PARAGUAY, Asuncion	152
KC6	CAROLINE ISLANDS	297	VE3	Toronto	71	ZS	UNION OF SOUTH AFRICA, Capetown	108
KG4	GUANTANAMO BAY, Cuba	150	VE4	Winnipeg	324		Durban	98
KG6	GUAM	306	VE5	Saskatoon	317		Johannesburg	95
KG6I	IWO JIMA ISLAND	317	VE6	Edmonton	315	ZS3	SOUTH WEST AFRICA, Windhoek	99
KG6S	SAIPAN ISLAND	307	VE7	Vancouver	300	ZS7	SWAZILAND	94
KG6T	TINIAN ISLAND	307	VE8	Fort Nelson	321	ZS8	BASUTOLAND	99
KH6	HAWAIIAN ISLANDS, Honolulu	274	VK1	HEARD ISLAND	137	ZS9	BECHUANALAND	94
KJ6	JOHNSTON ISLAND	278	VK2	AUSTRALIA, Sydney	260	3A2	MONACO	53
KL7	ALASKA, Anchorage	320	VK3	Melbourne	257	3V8	TUNISIA, Tunis	57
	Fairbanks	328	VK4	Brisbane	266	4X4	ISRAEL	47
			VK5	Darwin	298	5A2	LIBYA	57
						9S4	SAARLAND	48

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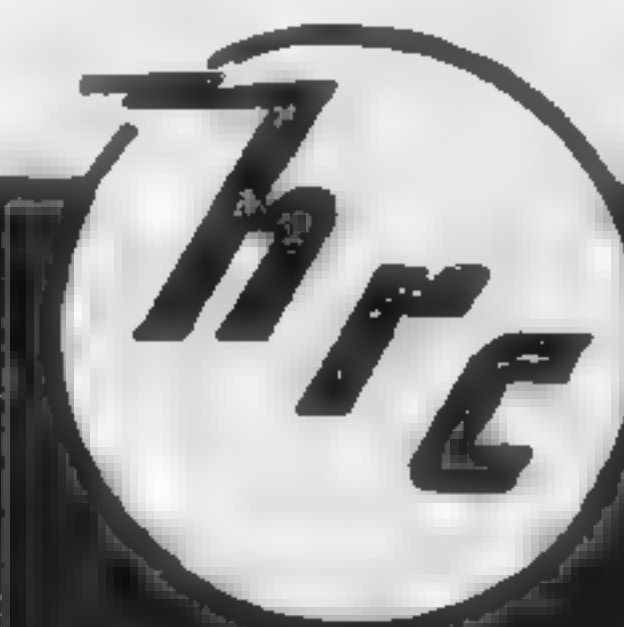


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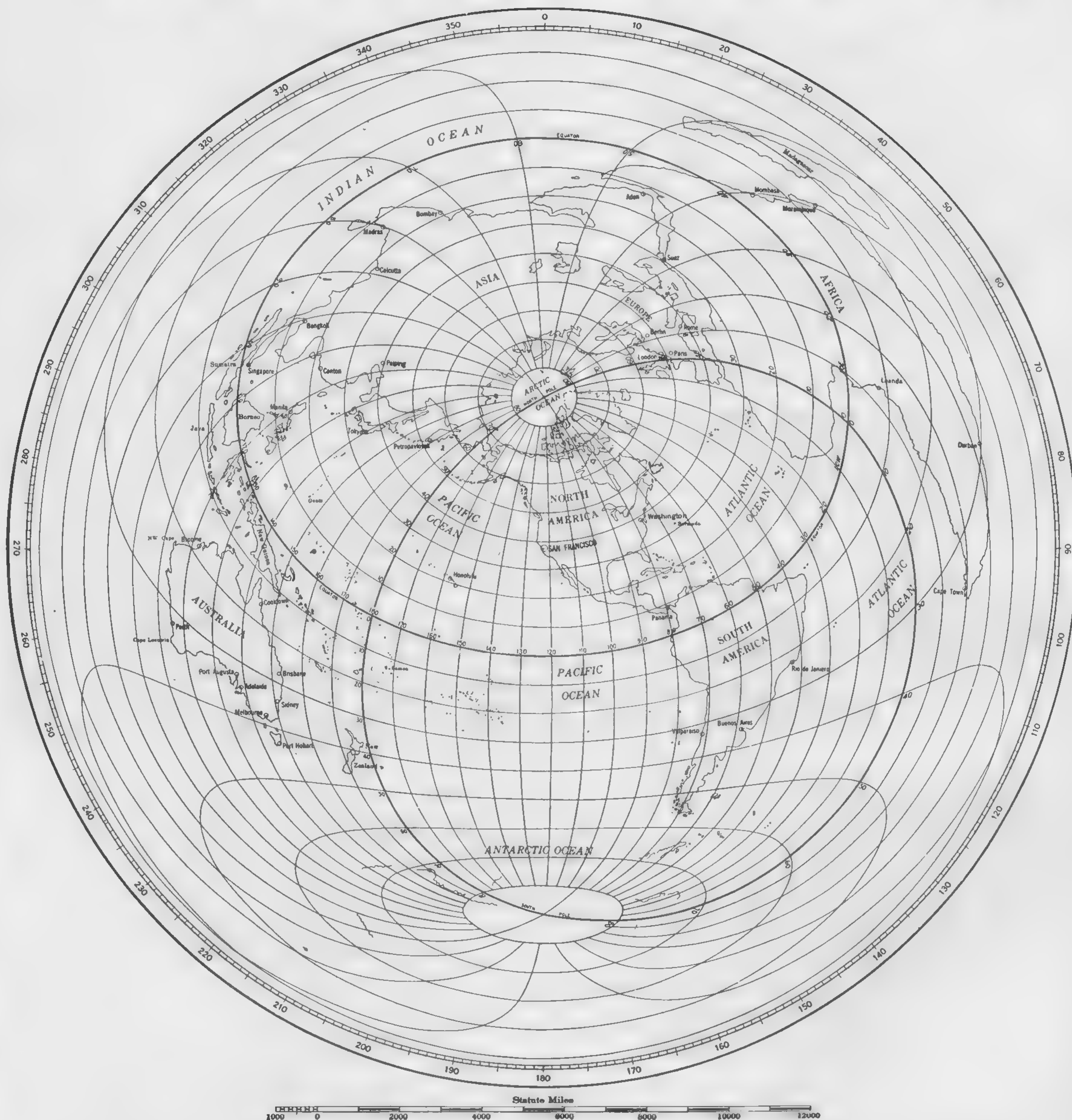
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Great Circle Chart of the World Centered on SAN FRANCISCO, CALIFORNIA



To find the great circle bearing of any point in the world from San Francisco draw a straight line from the center and note the reading in degrees as indicated on the outer scale. The bar scale may be used to determine the approximate distance. This map was prepared by the Hydrographic Office of the U. S. Navy Department.

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AMSTERDAM, HOLLAND	43	325	153	242	160	26	48	45	158	51	114	141	38	198	170	170	45	58	329	227	156	32	34	47	42	170	139	51	179	168	336	346	33	254	324	TOKYO, JAPAN					
ANCHORAGE, ALASKA	42	325	151	241	153	23	47	44	156	■	113	137	37	191	158	29	27■	101	157	167	44	57	327	221	154	36	33	47	42	165	137	50	173	166	334	342	32	253	323	SYDNEY, AUSTRALIA	
ASUNCION, PARAGUAY	42	315	141	240	143	7	45	43	14■	40	97	131	35	162	142	27	261	81	146	154	45	56	317	177	145	84	33	46	39	151	129	46	153	155	325	328	30	256	314	SINGAPORE, MALAYA	
AUCKLAND, NEW ZEALAND	51	321	167	253	186	36	5■	53	16■	60	117	172	45	217	210	36	284	105	177	187	187	53	68	346	2■5	168	331	40	56	50	191	153	59	205	181	349	7	39	270	335	SHANGHAI, CHINA
BOGOTA, COLOMBIA	49	320	160	250	172	■9	■	■1	163	5■	112	159	42	203	189	34	27■	99	168	178	51	6■	338	222	161	54	38	53	47	179	146	56	189	173	342	356	37	266	329	SANTIAGO, CHILE	
BUENOS AIRES, ARGENTINA	46	322	156	246	167	28	■0	47	1■0	■	113	151	40	201	183	3■	279	101	164	174	48	61	334	224	159	37	36	50	45	175	143	53	185	170	339	351	35	259	327	SAN JOSE, COSTA RICA	
BUENOS AIRES, ARGENTINA	38	322	138	236	135	3	41	40	143	37	100	122	32	151	127	24	263	84	141	148	41	52	312	166	142	69	30	42	36	143	126	42	144	152	322	321	27	250	312	ROME, ITALY	
BOMBAY, INDIA	45	320	152	245	158	21	49	47	156	49	108	144	39	186	165	31	274	95	158	167	48	60	328	207	154	66	36	50	44	167	138	51	173	166	335	343	34	260	323	RIO DE JANEIRO, BRAZIL	
BOMBA, INDIA	47	320	157	247	167	27	52	49	161	53	111	153	41	198	182	33	278	99	165	174	50	63	334	219	159	53	37	52	46	175	143	54	184	171	340	352	36	263	327	QUITO, ECUADOR	
BUENOS AIRES, ARGENTINA	44	324	156	243	166	29	49	46	161	53	115	148	39	206	186	31	281	103	164	175	46	59	333	232	159	24	35	48	44	175	142	52	187	171	339	352	34	255	327	PARIS, FRANCE	
BUENOS AIRES, ARGENTINA	39	326	142	237	138	12	43	41	148	44	110	122	34	161	123	26	274	97	146	154	42	53	317	189	147	48	31	43	38	149	130	45	150	157	326	326	29	249	317	OSLO, NORWAY	
DENVER, COLORADO	38	323	137	235	133	2	41	39	143	37	101	120	32	149	124	24	264	85	141	147	41	52	312	164	142	66	29	42	35	142	125	42	142	152	321	320	27	249	312	MONTREAL, CANADA	
DES MOINES, IOWA	43	320	146	242	149	15	47	44	151	45	105	135	37	173	149	28	270	90	152	160	46	58	323	194	150	68	34	47	41	158	134	48	162	161	330	335	32	256	319	PRAGUE, CZECHOSLOVAKIA	
DETROIT, MICH.	47	320	156	247	166	25	51	49	160	52	110	151	41	195	178	32	277	97	163	173	50	63	333	216	159	62	37	52	46	173	142	54	182	169	339	350	35	263	326	PARIS, FRANCE	
EL PASO, TEXAS	36	329	135	233	125	1	39	37	142	37	108	111	30	136	106	22	270	94	137	142	38	49	308	150	140	52	27	40	34	135	124	41	131	149	319	313	25	245	312	OSLO, NORWAY	
HELENA, MONTANA	36	318	133	233	130	355	39	38	138	31	89	119	30	144	124	22	252	71	136	142	39	49	308	154	137	78	28	40	33	138	121	39	138	147	317	316	25	249	307	MONTREAL, CANADA	
HOUSTON, TEXAS	39	328	143	237	137	15	43	41	149	45	113	120	34	162	116	26	277	100	147	154	41	53	317	199	147	41	30	43	38	149	130	46	150	158	327	326	29	247	318	QUITO, ECUADOR	
INDIANAPOLIS, IND.	45	321	153	244	160	23	49	47	157	50	110	144	39	190	168	31	276	97	160	169	47	60	329	212	155	54	35	49	43	168	139	52	176	167	336	345	34	259	324	PARIS, FRANCE	
JACKSONVILLE, FLA.	42	326	155	242	163	30	48	44	160	53	117	142	37	209	185	30	283	105	163	173	44	57	331	239	158	20	33	47	42	174	141	51	187	170	338	350	33	251	326	OSLO, NORWAY	
KANSAS CITY, MO.	42	322	145	240	146	14	45	43	151	45	107	132	36	171	143	28	271	93	151	159	44	56	321	193	149	61	33	46	40	156	133	47	159	160	329	333	31	254	319	MONTREAL, CANADA	
LITTLE ROCK, ARK.	41	325	146	240	147	17	45	43	152	47	111	130	36	175	141	28	275	98	152	160	43	56	322	203	150	47	32	45	40	157	134	48	161	161	330	334	31	252	320	QUITO, ECUADOR	
LOS ANGELES, CALIF.	31	333	127	228	116	347	34	33	135	28	102	104	26	121	100	18	260	84	128	132	34	44	300	126	134	58	24	35	28	124	117	34	119	141	312	303	21	241	306	PRAGUE, CZECHOSLOVAKIA	
LOUISVILLE, KY.	44	322	153	244	160	23	49	46	157	50	111	144	39	191	168	30	277	98	160	169	47	60	329	215	156	47	35	49	43	168	139	51	176	167	336	345	33	257	324	PARIS, FRANCE	
MIAMI, FLORIDA	41	328	155	240	163	33	47	43	160	54	118	138	37	223	217	30	285	108	163	175	43	56	331	254	158	13	33	46	42	176	140	50	194	171	339	351	32	247	327	OSLO, NORWAY	
MILWAUKEE, WIS.	45	319	152	245	158	20	50	47	156	49	107	145	39	185	165	31	273	94	158	167	48	61	328	205	154	72	36	50	44	166	138	52	173	165	335	343	34	261	323	MONTREAL, CANADA	
MINNEAPOLIS, MINN.	44	317	147	243	152	15	48	46	152	46	103	139	38	175	154	29	270	90	153	161	47	59	324	193	150	81	35	49	42	160	134	49	164	161	331	337	33	259	319	QUITO, ECUADOR	
NASHVILLE, TENN.	43	323	151	242	157	23	48	45	156	50	112	140	38	190	162	30	277	99	158	167	46	58	328	216	155	43	34	48	42	166	138	50	174	166	335	343	33	255	324	PARIS, FRANCE	
NEW ORLEANS, LA.	40	327	147	239	146	21	45	42	153	48	114	127	35	182	133	28	279	102	152	161	43	55	322	220	151	35	32	45	40	158	135	48	163	162	331	334	30	249	321	OSLO, NORWAY	
NEW YORK, N. Y.	49	321	164	251	180	34	54	51	167	58	116	166	43	214	204	35	283	104	173	184	51	66	343	233	165	4	39	54	48	187	150	57	199	177	346	3	38	266	333	MONTREAL, CANADA	
NORFOLK, VA.	46	323	161	247	176	33	51	48	165	56	116	160	41	213	203	33	283	104	170	181	48	62	339	235	163	12	36	51	46	184	147	55	197	175	344	0	36	260	331	QUITO, ECUADOR	
PHILADELPHIA, PA.	48	322	163	249	178	33	53	50	166	57	115	164	42	212	202	34	282	103	172	182	50	65	341	232	164	11	38	53	48	185	149	56	197	176	345	2	37	264	332	PARIS, FRANCE	
PHOENIX, ARIZONA	34	330	131	231	121	354	37	35	138	33	105	108	28	129	104	20	265	89	133	138	36	47	304	137	137	56	26	38	31	130	121	38	126	146	316	308	23	243	309	OSLO, NORWAY	
PITTSBURGH, PA.	47	321	158	247	170	29	52	49	162	54	113	155	41	203	187	33	279	100	167	176	49	63	336	224	160	41	37	52	46	178	145	55	188	172	341	354	36	262	329	PRAGUE, CZECHOSLOVAKIA	
ST. LOUIS, MO.	43	322	149	242	153	19	47	45	154	48	109	137	37	181	156	29	274	96	155	164	46	58	325	204	152	55	34	47	42	162	136	49	167	163	332	339	32	256	321	MONTREAL, CANADA	
SALT LAKE CITY, UTAH	35	325	132	232	127	355	38	36	139	32	96	114	29	138	116	21	258	79	135	141	38	48	307	149	136	67	27	39	32	135	121	38	134	146	317	313	24	247	308	QUITO, ECUADOR	
SAN FRANCISCO, CALIF.	30	333	125	226	115	343	32	31	132	24	95	104	24	121	101	16	252	74	126	130	33	42	298	126	131	62	22	33	26	123	115	32	119	139	310	301	19	240	303	PARIS, FRANCE	
SEATTLE, WASHINGTON	31	321	125	227	120	345	33	32	131	23	79	110	25	131	113	17	240	58	128	133	34	43	300	138	130	75	24	35	27	128	113	32	127	139	309	306	20	243	301	OSLO, NORWAY	
WASHINGTON, D. C.	47	322	161	248	175	32	52	49	164	56	115	160	41	210	198	33	282	103	170	180	49	63	339	231	163	20	37	52	47	182	147	55	194	174	343	359	36	262	331	MONTREAL, CANADA	
WILMINGTON, N. C.	45	324	159	245	172	32	50	47	163	55	116	154	39	213	200	32	283	105																							

The above table shows the great circle bearing in degrees, of various metropolitan areas in the United States in relationship to large cities throughout the world. This table should be used from left to right only. To find the great circle bearing between any two of the cities shown, start at the left and follow the horizontal line to the right until you come to the column directly under the name of the city that you desire

to beam a radio signal to. For all practical purposes in the United States, Polaris (the North Star), is due north. To find this star, to calibrate a directional radio beam, look for the first star on a straight line with the two outer stars on the outside edge of the cup of the big dipper. This table was compiled from information furnished by the U. S. Coast and Geodetic Survey. Copyright 1947, Radio Amateur Call Book, Inc.

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AMATEUR FREQUENCIES				
CODE	TYPE	APPLICATION	TOL.	PRICE
E17	AX2	1800-1825 kc; 1875-1900 kc; 1900-1925 kc; 1975-2000 kc	*	3.75
E18	AX2	3500-4000 kc	*	2.95
E19	AX2	7000-7425 kc; 8000-9000 kc	*	2.95
*NOTE: We will supply to integral spot frequencies (no fractions) as ordered; calibration ±500 cycles in factory test oscillator.				
E20	AX2	14-14.5 mc	±10kc	3.95
SPOT FREQUENCIES FOR NET OPERATION				
E22	MC9	3 mc-12 mc experimental freq.	±.03%	6.50
E22A	SR10	12 mc-27.5 mc experimental freq.	±.03%	8.50
CRYSTAL FILTERS CITIZEN'S SERVICE STANDARD FREQUENCIES				
E10	KV3	reference frequency 100 kc	±.005%	\$8.50
E11	MS433	reference frequency 1000 kc	±.005%	17.00
E11A	MC9	marker frequency 1000 kc	±.05%	8.00
E13	MC9	13.6275 mc (multiplier to 27.255 mc) CITIZEN'S RADIO SERVICE (CLASS "C")	±.04%	5.50
E13A	SR10	27.255 mc (3rd overtone crystal) CITIZEN'S RADIO SERVICE (CLASS "C")	±.04%	5.50
E14	CF3	455 kc—456 kc—465 kc Single Signal Filters	±5 kc	5.00
E15	CF6	455 kc—456 kc—465 kc Single Signal Filters	±5 kc	4.50



BLILEY ELECTRIC CO.
UNION STATION BLDG., ERIE, PA.

Federal Communications Commission Examination Points

Examinations for commercial and amateur operator licenses are conducted at Washington, D. C., each week except Saturday, and at each radio district office of the Commission on the days designated by the Engineer in Charge of the office. Specific dates should be obtained from the Engineer in Charge. The following list gives the address of each field office of the Commission.

Radio District	Address of the Engineer in Charge
1	1600 Customhouse, Boston 9, Mass.
2	748 Federal Bldg., 641 Washington St., New York 14, N.Y.
3	Room 1005, New U. S. Customhouse, 2nd & Chestnut Sts., Philadelphia 6, Pa.
4	400 McCawley Building, 400 E. Lombard Street, Baltimore 2, Maryland.
5	Room 402, New Post Office Bldg., Norfolk 10, Va.
6	411 Federal Annex, Atlanta 3, Georgia. Sub-office: P. O. Box 77, 214-218 P. O. Bldg., Savannah, Georgia.
7	P. O. Box 150, 312 Federal Bldg., Miami 1, Florida. Sub-office: 409-410 P. O. Bldg., Tampa 2, Florida.
8	400 Audubon Bldg., New Orleans 16, La. Sub-office: 324 U. S. Court House, Mobile 10, Alabama.
9	324 U. S. Appraisers Bldg., 7300 Wingate Ave., Houston 11, Texas. Sub-office: 329 P. O. Bldg., Beaumont, Texas.
10	P. O. Box 5238, 500 U. S. Terminal Annex, Dallas 2, Texas.
11	539 U. S. Post Office Bldg. & Courthouse Bldg., Temple & Spring Sts., Los Angeles 12, Calif. Sub-office: 15-C U. S. Customhouse & Courthouse Bldg., Union & F Sts., San Diego 1, Calif.
12	328 Customhouse, San Francisco 26, Calif.
13	917 S. W. Oak Street, Portland, Oregon.
14	808 Federal Office Bldg., Seattle 4, Wash.
15	521 Customhouse, Denver 2, Colorado.
16	208 Federal Courts Building, St. Paul 2, Minnesota.
17	3200 Fidelity Bldg., Kansas City 6E, Missouri.
18	826 U. S. Courthouse Bldg., Chicago 4, Ill.
19	1029 New Federal Bldg., Detroit 26, Mich.
20	328 Post Office Bldg., Ellicott & Swan Sts., Buffalo 3, N. Y.
21	609 Stangenwald Bldg., Honolulu 1, T. H.
22	P. O. Box 2987, 322-323 Federal Bldg., San Juan 13, P. R. Sub-office: P. O. Box 644,
23	P. O. Box 1421, 7-8 Shattuck Bldg., Juneau, Alaska.

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- Tapered Spiral Radiator
- Non XYL Resistive

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15 Meter HELI-WHIP 4 ft.	15.00 each
20 Meter HELI-WHIP 6 ft.	18.00 each
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75 Meter HELI-WHIP 6 ft.	18.00 each
HW-3 3-BAND HELI-WHIP 6 ft.	
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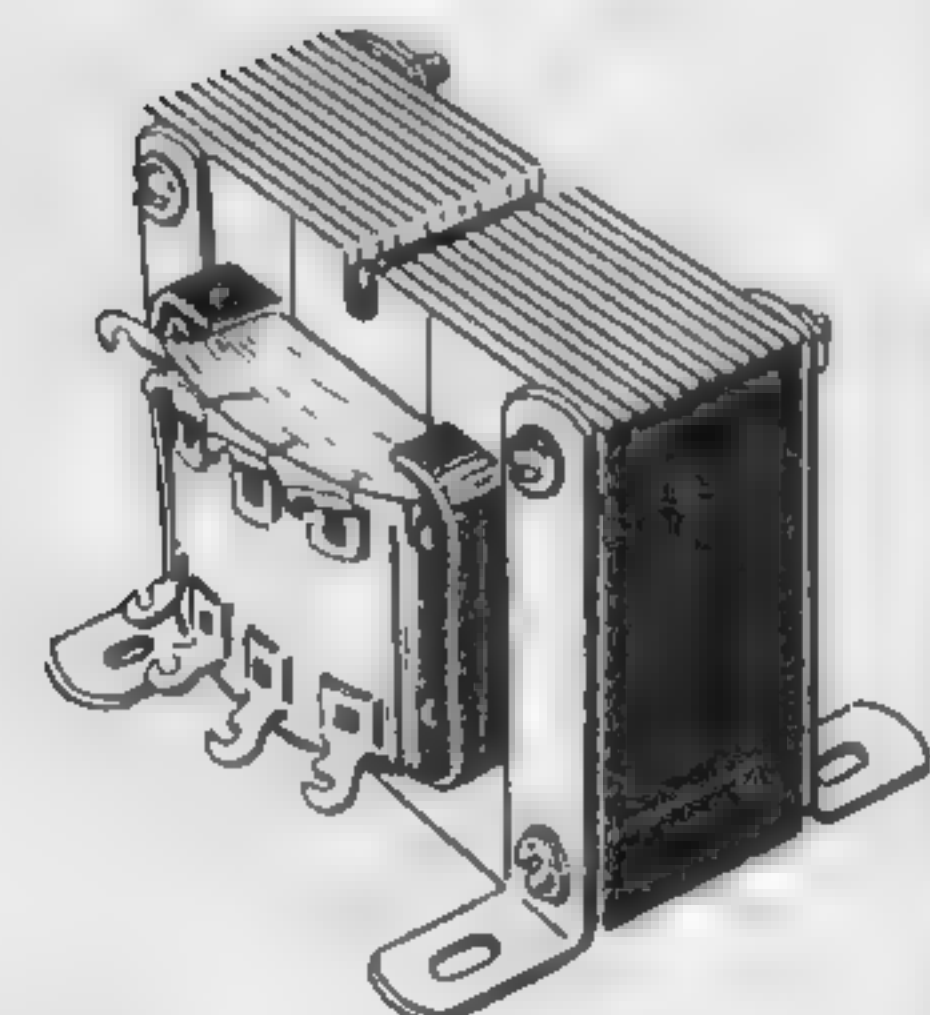
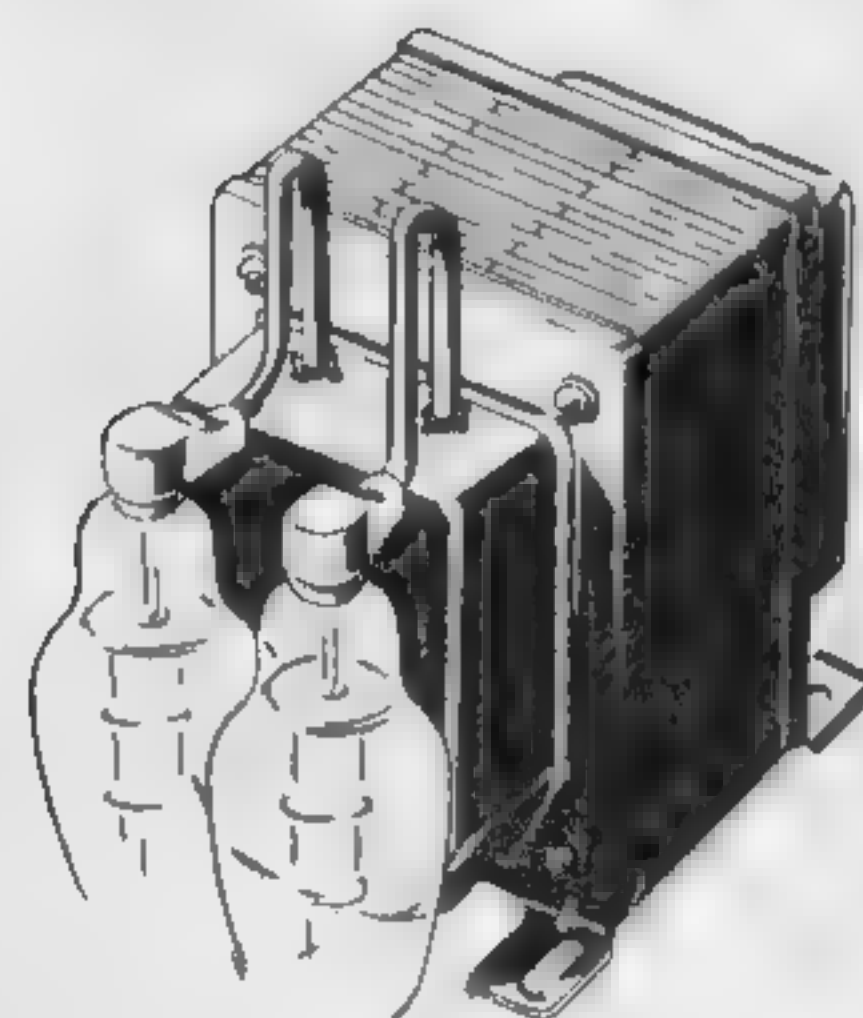
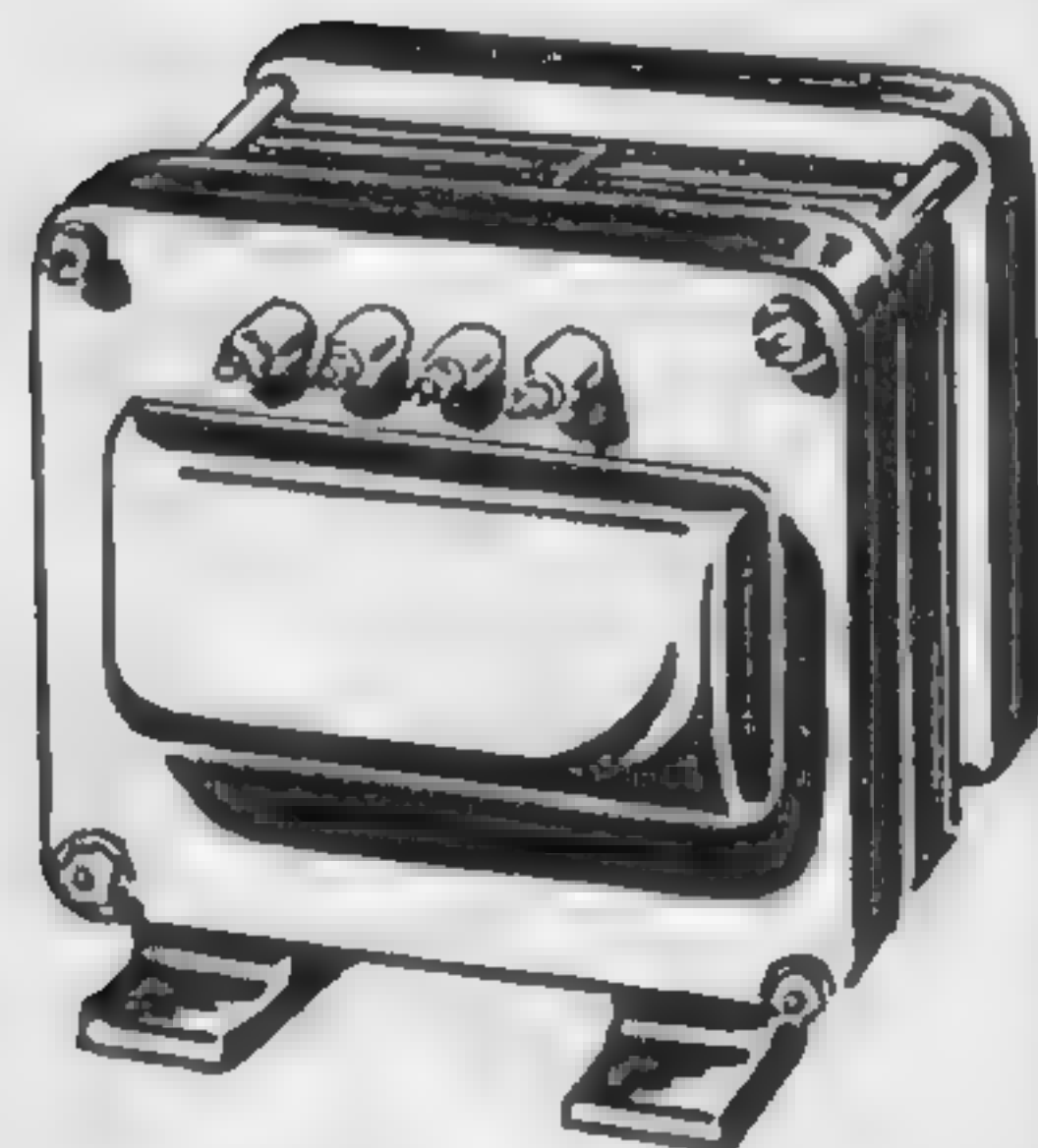
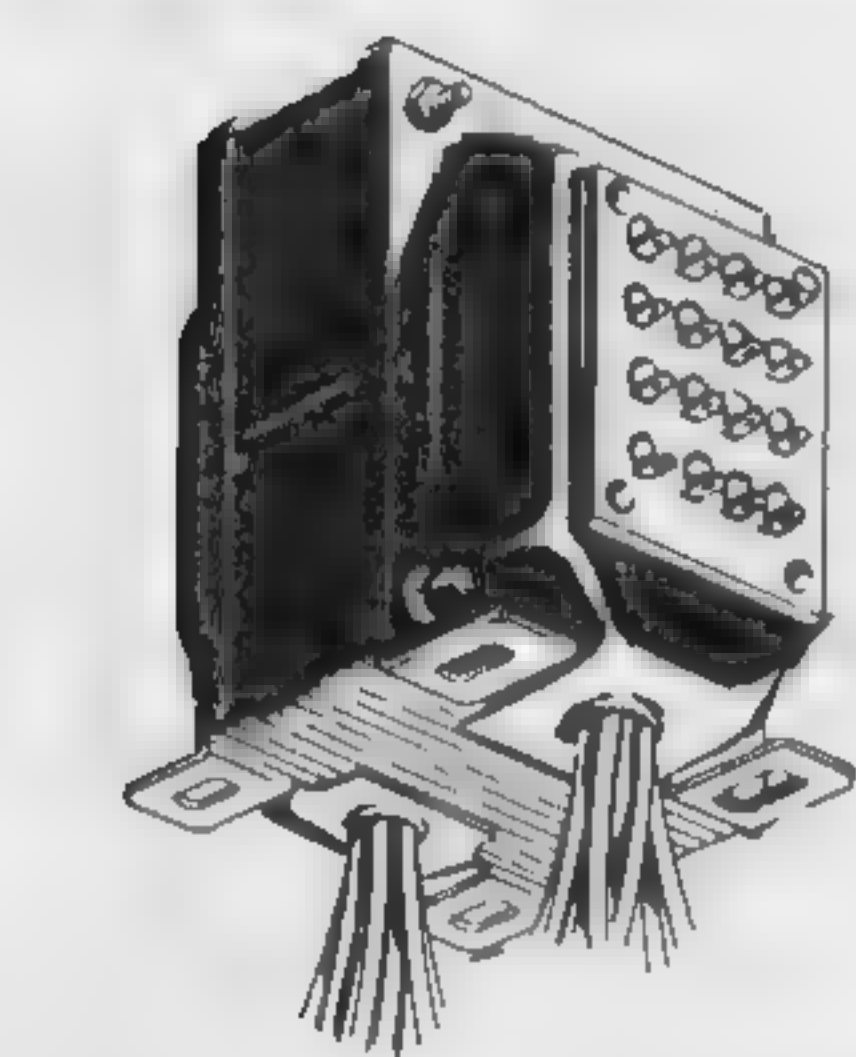
ATLANTA, GA.	264	322	47	24	25	301	343	15	86	269	297	320	7	271	310	312	246	5	125	314	287	281	281	347	145	306	281	281	347	154	345	331	321	234	48	44	48	278	27	318	296	289	308	48	84					
BIRMINGHAM, ALA.	82	326	50	31	40	304	356	26	84	268	299	328	17	270	312	312	246	5	125	314	287	281	281	347	145	306	281	281	347	154	345	331	321	234	48	44	48	278	27	318	296	289	308	48	84					
BISMARCK, N. D.	132	137	92	97	115	209	114	105	124	167	205	133	104	198	273	165	119	132	148	150	233	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123				
BOSTON, MASS.	236	241	291	277	247	278	273	267	226	254	275	275	274	262	293	246	263	220	268	253	273	256	207	178	281	249	337	235	119	233	268	258	262	280	280	280	280	280	280	280	280	280	280	280	280	280				
BUFFALO, N. Y.	208	217	291	92	206	273	264	237	192	241	269	268	261	252	290	231	243	191	258	237	267	231	184	274	286	225	211	118	160	134	261	199	248	276	293	159	174	174	174	174	174	174	174	174	174	174				
CHARLESTON, W. VA.	208	223	307	61	24	287	309	359	174	251	282	293	345	260	300	238	293	180	279	251	274	270	174	316	311	245	223	61	108	71	269	31	275	286	282	301	80	143	143	143	143	143	143	143	143	143	143			
CHEYENNE, WYO.	108	112	26	76	91	81	81	103	140	187	83	79	189	319	143	90	113	101	119	241	95	119	71	02	104	128	81	92	83	219	84	98	268	262	303	87	100	100	100	100	100	100	100	100	100	100				
CHICAGO, ILL.	161	175	302	82	78	125	272	93	144	221	266	268	80	242	293	210	151	155	245	208	262	157	156	350	308	173	100	116	97	254	101	212	274	272	295	106	131	131	131	131	131	131	131	131	131	131	131			
CLEVELAND, OHIO	197	209	297	80	55	179	277	277	176	240	272	275	310	252	293	228	245	180	261	235	268	226	171	290	296	219	214	95	136	105	262	127	250	278	277	296	124	156	156	156	156	156	156	156	156	156	156			
COLUMBIA, S. C.	268	267	317	41	10	354	299	389	356	270	295	311	350	271	308	256	326	189	300	279	282	320	174	331	323	297	246	39	53	37	279	7	305	295	290	307	33	85	85	85	85	85	85	85	85	85	85	85		
DALLAS, TEXAS	81	82	349	57	49	61	325	36	50	80	319	15	45	266	325	157	47	97	15	61	280	55	112	32	11	65	115	60	71	61	277	55	40	308	291	315	63	80	80	80	80	80	80	80	80	80	80			
DENVER, COLORADO	103	107	22	73	72	87	6	75	77	99	134	74	74	189	325	138	84	109	91	112	246	90	116	70	55	98	124	78	88	80	224	80	91	283	267	308	83	96	96	96	96	96	96	96	96	96	96			
DES MOINES, IOWA	134	144	318	80	78	105	271	84	87	123	197	262	81	231	297	187	105	135	197	171	257	116	141	69	5	133	165	87	104	91	247	92	137	273	270	296	97	115	115	115	115	115	115	115	115	115	115			
DETROIT, MICH.	188	200	295	86	79	164	273	263	129	168	233	268	268	248	291	222	224	174	254	227	265	208	171	282	292	206	207	100	133	109	258	128	238	275	274	294	124	151	151	151	151	151	151	151	151	151	151	151		
EL PASO, TEXAS	77	78	14	58	54	64	8	50	56	76	79	8	42	53	345	98	57	86	48	71	285	62	97	46	33	68	92	61	69	62	290	59	57	335	298	327	64	75	75	75	75	75	75	75	75	75	75	75		
HELENA, MONTANA	112	116	85	84	88	100	133	97	93	108	134	141	105	92	162	136	101	115	115	122	203	105	119	94	91	111	127	89	98	92	180	94	109	179	224	283	95	104	104	104	104	104	104	104	104	104	104	104		
HOUSTON, TEXAS	64	60	348	50	40	49	329	25	39	67	338	325	6	34	285	327	34	84	3	26	288	40	103	22	5	46	86	52	60	53	289	45	24	314	297	319	51	68	68	68	68	68	68	68	68	68	68	68		
INDIANAPOLIS, IND.	166	185	308	72	58	110	281	332	62	143	234	276	290	41	250	298	220	157	267	226	267	168	158	338	316	188	199	80	107	85	261	80	251	281	277	298	94	127	127	127	127	127	127	127	127	127	127	127		
JACKSONVILLE, FLA.	327	309	324	33	9	1	308	339	0	8	286	304	323	355	282	314	273	340	314	300	288	338	163	341	332	326	271	29	34	28	287	8	323	303	295	312	23	39	39	39	39	39	39	39	39	39	39	39	39	
KANSAS CITY, MO.	120	129	332	72	67	90	288	60	73	111	196	278	15	66	236	306	184	82	126	157	262	95	134	50	9	113	157	78	93	81	253	79	97	282	275	302	85	105	105	105	105	105	105	105	105	105	105	105	105	
LITTLE ROCK, ARK.	97	104	335	59	48	65	307	26	48	92	243	300	352	41	260	315	208	43	114	338	276	55	128	21	356	71	158	62	76	64	271	56	22	297	286	309	67	89	89	89	89	89	89	89	89	89	89	89	89	
LOS ANGELES, CALIF.	81	82	41	62	61	70	52	62	65	79	88	57	60	62	100	19	96	67	87	67	81	70	94	59	52	76	92	65	71	66	95	67	69	35	319	348	68	78	78	78	78	78	78	78	78	78	78	78		
LOUISVILLE, KY.	166	190	313	66	47	87	287	339	43	137	242	282	301	26	256	302	227	348	156	280	239	271	158	342	322	202	205	71	98	75	266	63	278	285	281	301	82	120	120	120	120	120	120	120	120	120	120	120	120	
MIAMI, FLORIDA	337	326	329	22	3	355	313	342	356	355	302	310	329	353	291	318	290	342	345	321	315	293	341	342	335	334	298	18	16	15	293	1	330	308	299	315	11	13	13	13	13	13	13	13	13	13	13	13	13	
MILWAUKEE, WIS.	162	175	297	87	88	132	267	170	107	147	218	261	253	99	239	290	207	157	156	235	204	259	160	157	298	172	188	98	121	103	251	111	203	271	270	293	113	135	135	135	135	135	135	135	135	135	135	135	135	
MINNEAPOLIS, MINN.	145	154	291	91	96	123	248	125	108	135	193	242	184	105	227	283	186	132	144	189	175	248	137	146	114	148	169	99	116	104	237	110	159	259	261	287	111	127	127	127	127	127	127	127	127	127	127	127	127	
NASHVILLE, TENN.	140	180	320	59	40	61	295	354	36	114	251	290	318	24	261	307	231	8	142	298	254	275	22	150	353	333	205	63	83	65	271	50	313	291	285	305	68	103	103	103	103	103	103	103	103	103	103	103	103	
NEW ORLEANS, LA.	50	37	337	46	32	38	318	9	28	60	299	313	347	22	283	321	270	17	86	339	339	288	22	114	7	351	23	46	56	47	287	35	359	308	296	315	47	64	64	64	64	64	64	64	64	64	64	64		
NEW YORK, N. Y.	233	240	296	54	303	251	281	281	280	223	255	278	280	286	262	294	244	269	213	271	253	274	259	202	287	293	251	237	205	229	269	269	266	283	282	297	235	208	208	208	208	208	208	208	208	208	208	208	208	
NORFOLK, VA.	249	253	306	35	342	291	290	303	319	236	264	286	295	318	268	301	253	294	217	285	267	279	284	198	308	307	269	244	25	16	274	322	284	289	286	302	343	208	208	208	208	208	208	208	208	208	208	208	208	208
PHILADELPHIA, PA.	233	240	298	52	317	255	283	285	289	221	255	279	283	294	263	296	246	273	212	273	255	275	263	199	292	296	252	235	49	197	270	279	269	284	282	298	235	203	203	203	203	203	203	203	203	203	203	203	203	203
PHOENIX, ARIZONA	80	83	29	61	59	69	35	58	62	79	89	40	55	59	108	0	100	64	89	62	80	277	70	97	55	45	74	93	64	72	66	64	66	1	300	334	68	79	79	79	79	79	79	79	79	79	79	79	79	
PITTSBURGH, PA.	210	221	300	72																																														

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or any other transformer type for industrial, military or special purpose application, look to

CHICAGO STANDARD



Typical of the choice you have is this partial summary of stock transformers . . .

DRIVER TRANSFORMERS:

13 units for single or p-p plates to p-p grids, 1500-30,000 ohm primaries, 1:1 to 5.1 turns ratios and four "Poly-Pedance" units offering a variety of turns ratios.

MODULATION TRANSFORMERS:

7 units from 5 to 750 watts and six "Poly-Pedance" units that match all common impedances of Class "B" modulators to Class "C" loads

PLATE TRANSFORMERS:

38 units, with 500 VAC to 4600 VAC secondaries, 400 VDC to 4000 VDC for both reactor and capacitor input filters.

PLUS . . .

many other units for 500 watt and 1 KW transmitters, audio filters, modulation chokes, filament and modulation transformers, splatter chokes, etc.

No matter what your requirements, no matter what the application, the chances are you'll find a Chicago Standard transformer for the job.

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Unidyne



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FOR BEST RESULTS FROM *your* EQUIPMENT, THE NEW UNIDYNE, WITH 41% HIGHER OUTPUT, PROVIDES

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- ▶ *voice reproduction of exceptional clarity and fidelity*

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The Unidyne offers a fine response, giving your transmission the clean, crisp quality so necessary for those difficult "contacts". The ultra-cardioid pickup pattern of the Unidyne cuts down pickup of random noise energy by 67%—which will practically eliminate those problems of background noise pickup in the shack.

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\$83.00

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List Price, Model 556S

\$135.00

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Compiled by the National Bureau of Standards

Not all countries follow the International Time Zone System, but some use the time of some principal city as a standard and others have no standard time. The different time zones of the world are numbered east and west of Greenwich. The zone number when added or subtracted, as shown in the following table, from the time of the zone gives the corresponding Greenwich time. Thus zones to the east have faster time than Greenwich and are indicated as minus (—), while those to the west have slower time and are indicated as plus (+).

Country	Zone Number	Country	Zone Number	Country	Zone Number
Admiralty Islands	-10	Ecuador	+5	Norway§	-1
Afghanistan	-4	Egypt†	-2	Nyasaland	-2
Alaska		Eire†	0	Orkney Islands	0
Juneau, Ketchikan, Sitka	+8	Ellice Islands	-12	Pakistan	-5½
Cordova	+9	El Salvador	+6	Palestine†	-2
Central part	+10	England†	0	Panama	+5
West coast, Aleutian Islands	+11	Equatorial Africa, French	-1	Paraguay	+4
Albania†	-1	Eritrea	-3	Peru†	+5
Algeria	-0	Ethiopia	-3	Philippine Islands	-8
Amirante Islands	-4	Falkland Islands†	+4	Poland	
Amsterdam Island	-5	Fanning Island	+11	Western part	-1
Andaman Islands	-6½	Faroe Islands	0	Eastern part	-2
Andora†	0	Finland†	-2	Portugal†	0
Anglo-Egyptian Sudan	-2	France†	0	Puerto Rico	+4
Angola	-1	Gambia	0	Reunion Island	-4
Anguilla Island	+4	Germany†	-1	Rhodesia	
Antigua Island	+4	Gibraltar†	0	Northern	-2
Arabia†		Gilbert Islands	-12	Southern	-2
Aden†	-3	Gold Coast†	0	Rio de Oro	+1
Argentina†	+4	Greece†	-2	Rumania	-2
Aru Islands	-9	Scoresby Sound	+2	Samoa Islands	+11
Ascension Island	0	Angmagssalik, Disko Island, Western Coast	+3	San Marino†	-1
Austral (Tubuai) Islands	+10	Interior†		Sarawak	-8
Australia		Grenada Island	+4	Saudi Arabia†	0
Western Australia	-8	Guadeloupe Island	+4	Scotland	0
Northern Territory, South Australia†	-9½	Guam Island	-10	Senegal†	0
New South Wales,† Queensland, Victoria*	-10	Guatemala	+6	Seychelles Islands	-4
Austria†	-1	Guiana, British, Dutch, French	+3½	Siam	-7
Azores Islands†	0	Guinea	0	Sierra Leone	0
Bahama Islands	+5	French, Spanish	+1	Society Islands	+10
Bahrain Islands	-4	Portuguese		Solomon Islands	-11
Balearic Islands†	0	Haiti	+5	Somaliland	-3
Barbados Island†	+4	Hawaiian Islands	+10	Southwest Africa	-2
Bechuanaland	-2	Hebrides Islands	0	Spain†	0
Belgium†	0	Honduras	+6	Spitzbergen†	
Bermuda Islands†	+4	Hungary†	-1	St. Croix Island	+4
Bhutan	-5½	Iceland†	+1	St. Helena Island	0
Bolivia	+4	India†	-5½	St. Lawrence Island	+11
Borneo†	-8	Indo-China†	-8	St. Lucia Island	+4
Brazil		Iran	-3½	St. Matthew Island	+11
Fernando Noronha Island, Isle de		Iraq†	-3	St. Miguel Island	0
Trinidad	+2	Ireland, Northern†	0	St. Pierre Island†	+4
Bahia, Ceara, Esperito Santo, Goyaz, Miranhao, Minas-Geraes, Para, Parana, Pernambuco, Piahy, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Santa Catherina, Sao Paulo	+3	Isle of Man	0	St. Thomas Island	+4
Amazonas, Matto Grosso	+4	Isle of Pines	+5	St. Vincent Island	+4
Acre Territory	+5	Italy†	-1	Sudan (French West Africa)	
British Honduras†	+6	Jamaica	+5	Eastern part	0
Bulgaria	-3	Japan†	-9	Western part	+1
Burma	-6½	Java	-8	Sumatra Island	-7
Cameroons	-1	Kenya	-3	Sweden	-1
Canada		Kodiak Island	+10	Switzerland†	-1
Belle Isle, Labrador,† Newfoundland†	+3½	Korea	-9	Syria†	-2
Anticosti Island, Cape Breton Island, Magdalen Island, New Brunswick,† Nova Scotia,† Prince Edward Island, Quebec (east of 68° W.),† Sable Island	+4	Labrador	+3½	Tanganyika	-3
Melville Peninsula (east), Ontario (east of 90° W.),† Quebec (west of 68 W.),† Southampton Island	+5	Laccadive Islands	-5½	Tangier	0
Manitoba, Ontario (west of 90° W.), Melville Peninsula (west), Northwest Territories (east)	+6	Latvia*	-2	Tasmania Island†	-10
Alberta, Saskatchewan, Northwest Territories (middle)	+7	Liberia	-1	Timor Island	-9
British Columbia, Northwest Territories (west)	+8	Libya*	-1	Tobago Island	+4
Yukon	+9	Liechtenstein	-1	Togoland	0
Arctic Islands†		Lithuania*	-2	Tonga (Friendly) Islands	
Canary Islands†	+1	Lord Howe Island	-10½	Transjordan*	
Cape Verde Islands	+2	Luxembourg*	0	Trinidad Island	+4
Caroline Islands	-10	Madagascar Island	-3	Tunisia	-1
Ceylon Island†	-5½	Madeira Islands	0	Turkey†	-2
Chagos Archipelago†	-5	Malay States	-7½	Turks Island	+5
Chile†	+4	Maldiv Islands	-1	Uganda	-3
China		Malta Island	-12	Union of South Africa†	-2
Western part	-5	Marshall Islands	-12	United States of America†	
Mid-Western part	-6	Martinique Island	+4	Eastern	+5
Mid-Eastern part, Hainan, Palekoi, Hongkong, Macao	-7	Mauritius Island	+4	Central	+6
Eastern part	-8	Mexico*		Mountain	+7
Christmas Island	-7	Aguascalientes, Campeche, Chiapas, Chihuahua, Coahuila, Durango, Guanajuato, Guerrero, Jalisco, Mexico, Michoacan, Morelos, Nuevo Leon, Oaxaca, Puebla, Queretaro, Quintana Roo, San Luis Potosi, Tabasco, Tamaulipas, Tlaxcala, Yucatan	+6	Pacific	+8
Colombia	+5	Baja California (south of 28° N.), Nayarit, Sinaloa, Sonora	+7	Alaska	+10
Congo		Baja California (north of 28° N.)	+8	Uruguay†	+3
Western part	-1	Midway Island	+11	U. S. S. R.†	
Eastern part	-2	Monaco§	0	Estonia, Karelo-Finnish, Latvia, Lithuania, Moldavia, Russia, Ukraine, White Russia	-2
Cook Islands		Morocco§	0	Armenia, Azerbaijan, Georgia	-3
Costa Rica	+6	Mozambique	-2	Kazak, Tadzhik, Turkmen, Uzbek	-4
Cuba†	+5	Nepal	-5½	Kirghiz, W. Siberian Region	-5
Curacao Island	+4½	Netherlands	0	Approximately 82½° to 97½°	-6
Cyprus Island	-2	New Caledonia Islands	-11	Buryat-Mongol, E. Siberian Region	-7
Czechoslovakia	-1	Newfoundland§	+3½	Approximately 112½° to 127½°	-8
Dahomey	0	New Guinea		Kuril Islands, Sakhalin	-9
Denmark†	-1	Western part (Dutch)	-9	Approximately 142½° to 157½°	-10
Dodecanese Islands	-2	Eastern part (British)	-10	Approximately 157½° to 172½°	-11
Dominican Republic†	+5	New Hebrides Islands	-12	Approximately 172½° to coast	-12
		New Zealand§	-12	Vatican City	-1
		Nicaragua	+6	Venezuela	+4½
		Nigeria	-1	Virgin Islands	+4
		Norfolk Island	-11½	Wake Island	-12
		Northern Ireland§	0	Wales	0
				Wrangell Island	-12
				Yap Island	-10
				Yugoslavia	-1
				Zanzibar Island	-3

‡No definite standard time used.
§1 hour or 2 hours fast, fixed annually.

"Q" SIGNALS

Given below are a number of Q signals whose meanings most often need to be expressed with brevity and clearness in amateur work. (Q abbreviations take the form of questions only when each is sent followed by a question mark.)

- QAV Are you calling me? I am calling_____.
- QRG Will you tell me my exact frequency in kilocycles? Your frequency is_____kc.
- QRH Does my frequency vary? Your frequency varies.
- QRI How is the tone of my transmission? The tone of your transmission is_____ (1. good; 2. variable; 3. bad).
- QRJ Are you receiving me badly? Are my signals weak? I cannot receive you. Your signals are too weak.
- QRK What is the readability of my signals (1 to 5)? The readability of your signals is_____ (1 to 5).
- QRL Are you busy? I am busy or busy with (_____).
- QRM Are you being interfered with? I am interfered with.
- QRN Are you troubled by atmospherics? I am being troubled by atmospherics.
- QRQ Shall I send faster? Send faster (_____ words per min.).
- QRS Shall I send more slowly? Send more slowly (_____w.p.m.).
- QRT Shall I stop sending? Stop sending.
- QRU Have you anything for me? I have nothing for you.
- QRV Are you ready? I am ready.
- QRW Shall I tell_____that you are calling him? Please tell_____that I am calling him.
- QRX When will you call again? I will call you again at_____hours (on_____kc).
- QRZ By whom am I being called? You are being called by_____.
- QSA What is the strength of my signals (1 to 5)? The strength of your signals is_____ (1 to 5).
- QSB Does the strength of my signals vary? The strength of your signals varies.
- QSD Is my keying correct? Are my signals distinct? Your keying is incorrect; your signals are bad.
- QSG Shall I send_____telegrams (or one) at a time? Send_____telegrams at a time.
- QSL Can you give me acknowledgment of receipt? I give you acknowledgment of receipt.
- QSM Shall I repeat the last telegram I sent you? Repeat the last telegram you sent me.
- QSO Can you communicate with_____direct (or through_____)? I can communicate with_____direct (or through_____).
- QSP Will you relay to_____? I will relay to_____.
- QSV Shall I send a series of VVV_____? Send a series of VVV.
- QSW Will you send on_____kcs? etc. I will send on_____kcs, etc.
- QSX Will you listen for_____ (call sign) on_____kcs? I am listening for_____on_____kcs.
- QSY Shall I change to_____kilocycles without changing the type of wave? Change to_____kc. without changing type of wave.
- QSZ Shall I send each word or group twice? Send each word or group twice.
- QTA Shall I cancel nr_____as if it had not been sent? Cancel nr_____as if it had not been sent.
- QTB Do you agree with my number of words? I do not agree with your number of words; I will repeat the first letter of each word and the first figure of each number.
- QTC How many telegrams have you to send? I have_____telegrams for you or for_____.
- QTH What is your position (location)? My location is_____ (by any indication).
- QTR What is the exact time? The time is_____.
- CQ is the general call to any station.
- Special abbreviations adopted by ARRL:
- QST General call preceding a message addressed to all amateurs and ARRL Members. This is in effect "CQ ARRL."
- QRRR Official ARRL "land SOS." A distress call for emergency use only by station in an emergency situation.

A.R.R.L.-NET "QN" SIGNALS

- QNA Answer in pre-arranged order.
- QNB Act as relay between_____and_____.
- QNC All Net stations copy.
- QND Net is directed.
- QNE Entire Net please stand by.
- QNF Net is free.
- QNG Take over as Net Control Station.
- QNH Your Net frequency is high.
- QNI Report into Net or I report into Net.
- QNJ Can you copy me (or_____)?
- QNK Transmit message(s) (for_____) to_____.
- QNL Your Net frequency is low.
- QNM You are QRMing_____; please stand by.
- QNN Net Control Station is_____ (on_____kc.).
- QNO Going out of Net.
- QNP Unable to copy you (or_____)?
- QNQ Send you information "QNC" or May I transmit message "QNC?"
- QNR Answer_____and relay (or receive) traffic.
- QNS Following stations in Net_____.
- QNT Leaving Net temporarily (or for_____ minutes) or I request to leave Net temporarily, etc.
- QNU _____has traffic for you; await instructions (or QNU QNR).
- QNV Please request_____to QSV.
- QNW Through whom shall I relay message for_____?
- QNX You are excused from Net or I request to be excused.
- QNY Please shift to another frequency (or to_____kc.) to prevent QRMing other Net stations (or to clear traffic with_____).
- QNZ Zero beat your signal with that of the Net Control Station.

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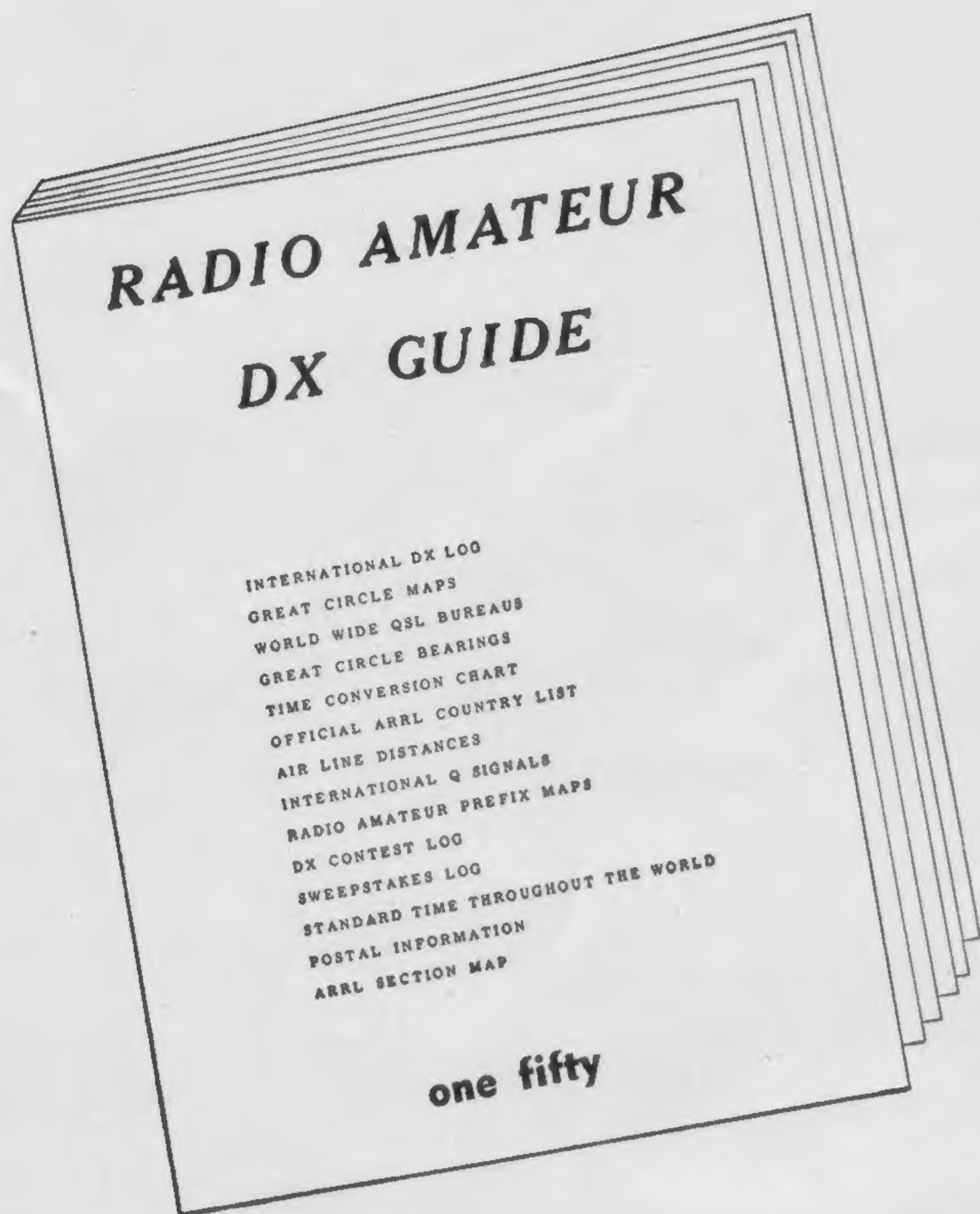
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WORLD MAP SHOWING



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fills a definite need for a handy book to have around the ham shack for reference purposes. Printed on a good grade of paper each page is perforated so that it can be easily removed for mounting under glass or on the wall.

JUST LOOK AT THIS TABLE OF CONTENTS

INTERNATIONAL DX LOG

This log lists all countries having licensed radio amateurs by prefix. Ample space is provided to make a permanent record of all DX stations worked; showing the date, call letters, frequency and whether a QSL card has been sent or received. All countries that qualify for DXCC are listed.

WORLD MAP SHOWING RADIO AMATEUR PREFIXES

This is an outline map of the world with all radio amateur prefixes. Total size 15 x 10 inches. Excellent for mounting.

GREAT CIRCLE MAPS

Three great circle maps are included centered on San Francisco, California; the center of the United States and New York, N. Y.

GREAT CIRCLE OUTLINE CHART OF THE UNITED STATES

Published by the U. S. Coast and Geodetic Survey, it is possible to determine the great circle bearing between any two points in the United States, with the proper use of this map.

PREFIX MAP OF SOUTH AMERICA

An outline map of South America showing the number or letter designating all sections and countries. Very handy for determining just what part of each country is heard or worked.

ARRL SECTION MAP

One copy of this map is included which shows all of the ARRL sections in the United States. These maps can be used for checking off the different sections worked during ARRL contests.

GREAT CIRCLE BEARING TABLES

Each of these bearing tables are printed on a separate sheet which is perforated for easy removal of the one nearest to your location. Over 250 bearings are shown on each table and where cities are listed the bearing to the nearest degree is given. Bearings are included on the following points: Atlanta, Ga.; Boston, Mass.; Buffalo, N. Y.; Chicago, Ill.; Center of the USA; Denver, Colo.; Detroit, Mich.; Houston, Tex.; Jacksonville, Fla.; Kansas City, Mo.; Los Angeles, Cal.; Louisville, Ky.; Miami, Fla.; Minneapolis, Minn.; New Orleans, La.; San Francisco, Cal.; Seattle, Wash.

GREAT CIRCLE BEARINGS TO WORLD WIDE METROPOLITAN AREAS

Exact bearings are shown in this table to the nearest degree, from 39 cities in the USA to the same number of metropolitan areas throughout the world.

GREAT CIRCLE BEARINGS IN THE UNITED STATES

This table includes bearings between 39 large cities in the USA. Accurate to the nearest degree it is a valuable aid for VHF work as well as handling traffic through QRM.

TIME CONVERSION TABLE

With this time conversion table you can determine the time in any time zone in the world. Also provision is made to know whether it is today or tomorrow at the place heard or worked.

TIME THROUGHOUT THE WORLD

This page includes a list of time zones of countries the world over and an explanation of the International Time Zone System. Compiled by the National Bureau of Standards.

AIR LINE DISTANCES IN THE UNITED STATES

Arranged in alphabetical order, this page shows the air line distance between 39 cities in the United States. Compiled from information prepared by the U. S. Coast and Geodetic Survey.

INTERNATIONAL Q SIGNALS

All of the "Q" signals have been arranged on one page for instant reference.

POSTAL INFORMATION

This page shows the postal rates for QSL cards, first class and air mail letters to all foreign countries. Also the number of international reply coupons for sufficient postage for a return air mail letter is shown for most countries.

WORLD WIDE QSL BUREAUS

A complete list of all of the International QSL Bureaus, right up to date, are shown, compiled from the records of the CALLBOOK.

ARRL COUNTRIES LIST

Official list of ARRL DX contest and postwar DXCC. Courtesy ARRL.

DX CONTEST AND FIELD DAY LOG

This section contains a log that can be used either for a DX contest or the annual ARRL field day.

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